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30 June 1980

USSR Report

AGRICULTURE

No. 1239

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MAJOR CROP PROGRESS AND WEATHER REPORTING

STATUS OF CROP PROGRESS, WEATHER CONDITIONS REPORTED

Weather Delays in Kazakhstan

Moscow IZVESTIYA in Russian 12 Apr 80 p 1

[Article by G. Kasenov, IZVESTIYA correspondent for the Kazakh SSR]

[Text] This spring, declared K. Kalykov, secretary of the Talgarskiy party raykom of Alma-Atinskaya Oblast, has forced several changes in the work plans of agricultural workers. Oriented to the familiar time frame of past years, they had taken equipment directly to the sites of field operations on most farms at the beginning of the second decade of March. Frost came again, however, and the first field work did not begin until 24 March and then, two days later there was a copious snowfall. After waiting another two-three days, they were finally able to begin planting.

Planting is now intensively underway at farms in the Enbekshikazkhskiy, Illiyskiy, Dzhambulskiy, Kaskelenskiy and Kurtinskiy rayons of Alma-Atinskaya Oblast. The Chiliskiy and Balkhashskiy rayons are ready to begin. The mountain rayons, Kegenskiy and Narynkolskiy, will be underway shortly. Work on corn and potato plantings has been started in the piedmont regions.

Planting has also been intermittent in the other southern regions of the republic, in the Dzhambulskiy, Chimkentskiy and Taldy-Kurganskiy rayons. More than a thousand mechanized teams are operating here altogether. The characteristics of the current planting operations for the southern oblasts of the republic have been largely determined by the regular rains and, occasionally by frosts. They are delaying operations. At the same time, plentiful soil moisture gladdens the farmers and allows them to hope for a good harvest on the unirrigated land.

While the readiness of planting technology in the southern oblasts can be considered satisfactory on the whole, it is impossible to ignore the disturbing situation with K-700 tractors whose maintenance (both capital repair and restoration of individual units and combinations) has been entrusted totally to enterprises of Goskomsel'khoztekhnika. The Atbasarskiy plant did not return 36 engines and 19 fuel pumps to the farms of Alma-Atinskaya Oblast from repairs in March. This was equivalent to having almost 60 powerful "Kirovets" unavailable for use in planting operations. There have been a number of complaints by farms in regard to the quality of the maintenance work of the Chuyskiy plant within this same system. The situation in Taldy-Kurganskaya Oblast is even worse where more than 250 K-700 tractors are out of service on farms, 130 engines and 100 turbo-compressors have not been returned from repair and 30 inoperable tractors have simply been abandoned on the farms because repair plants have refused to take them due to a lack of spare parts.

Planting in the south of Kazakhstan is by nature a test of the readiness of technology that will soon be put to work in the major grain regions of the virgin lands in the oblasts of Central, Western and Eastern Kazakhstan. Drawing the correct conclusions and learning the lessons of experience in planting in the souther part of the republic is one of the primary tasks of local soviets and administrative organs today.

Planting Operations

Moscow TRUD in Russian 12 Apr 80 p 1

[Brief article, "Planting Operations Underway" noting problems and progress in specific areas]

[Text] Azerbaijan SSR. Farmers in Azerbaijan have already finished sowing cotton on 100,000 hectares — almost half the cotton sector.

Frunze. The potato farmers of Kirgizia have left for the fields. In order to make up for time lost as a result of rainy weather, it was decided that planting would be done solely by the Ipatovskiy method.

Approximately twenty mechanized complexes are working in two shifts. At present because of the increase in agricultural crops, the expansion of fields and the planting of high-yield varieties, the farmers of the republic have made a commitment to sell the state 80,000 tons of potatoes which is 15,000 more than at the beginning of the five year plan.

Belgorod. The kolkhozes and sovkhozes of Belgorodskaya Oblast have prepared their entire technology for operation. They must plant about a million hectares of spring crops and top-dress winter crops on an area of 600,000 hectares. All the equipment consigned to major planting complexes must operate in two shifts.

Progress in Rostovskaya Oblast

Moscow IZVESTIYA in Russian 15 Apr 80 p 1

[Article by V. Goncharov, freelance correspondent for IZVESTIYA]

[Text] Having finished the final preparations for planting, the workers of the Don lands are awaiting the desired time when it will be possible to go to the fields. The oblast party organization and local soviets have established a goal for the farmers: to produce 9 - 10 million tons of grain during the Lenin Jubilee Year.

Spring is now extremely late. This has produced a noticeable shift in the dates for field operations. People are not sitting idle, however. The workers at the Tselinskiy elevator have finished the job of grading 700 tons of seed corn by size ahead of time. They have also prepared 7,000 tons of sunflower seed in good time so that not only local farms are fully assured of good-quality planting material but a sizeable quantity is also being shipped to many kolkhozes and sovkhozes in the oblast.

Teams are now successfully working on fertility. They are intelligently and economically using mineral fertilizers and have applied almost 348,000 tons or 104 percent of the plan on the Dons's farms from the first quarter's stock. Bases of Rossel'khozkhimiya also supply nitrogen, phosphorous and potassium fertilizers. In the Salskiy rayon, for example, they are applied to the designated sites with a specially equipped tractor. Appropriate conditions have been created to store fertilizers. Trying to shore up future yields with a more reliable and solid base, may farms have concluded cooperative agreements with the suppliers of fertilizers.

Every rayon has its own complexities and specific characteristics in selecting the tactics for conducting spring field operations. For example, simultaneously with the planting of spring crops, farmers of the Veselovskiy rayon have also had to perform such agrotechnical measures as maintaining and restoring winter plantings. Local field technologists feel that winter crops come out of the winter season noticeably weakened and, for this reason, are greatly in need of sustenance. It was decided to top-dress them by mechanically spraying them with fertilizers where the soil is partially frozen and with planes from the agricultural aviation service on completely thawed ground. For the sake of avoiding delays in the field as a result of fueling problems, reservoirs for the storage of fuel and lubricant reserves are provided near dependable paved roads.

Uzbekistan Undertakes Seeding Campaign

Moscow SEL'SKAYA ZHIZN' 15 Apr 80 p 1

[Article by A. Uzilevskiy, SEL'SKAYA ZHIZN' correspondent]

[Text] The kolkhozes and sovkhozes of Uzbekistan are planting 140 - 150 thousand hectares in cotton every day. The delay caused by a late spring has been overcome. Hundreds of farms have already surpassed last year's pace and have completed seeding.

An accelerated work pace is coupled with a high level of exactingness for the quality of the operations. New methods of agrotechnology capable of sustaining germinated seedlings even in unfavorable weather conditions are being implemented on a broad scale for the first time. In past years, they have frequently been damaged and some have even died from the strong soil crust after heavy rains. Farms where seeds are placed on ridges and where the planting rows are mulched are protected against such damage. This type of test has totally justified itself in the Leninyulskiy and Gagarinskiy rayons of the Surkhandaryinskaya Oblast.

Today a progressive technique is being used on hundreds of thousands of hectares of land subjected to flooding prior to seeding. Numerous of kolkhozes and sovkhozes in the south of the republic, the Fergana Valley, the Tashkentskaya and other oblasts are undertaking seeding on ridges.

Ridges insure rapid warming of the soil, eliminate the repetitive cultivations following flooding before planting, pulverizing and compacting the soil and make it possible to plant seeds in ground with a high moisture content and, because of this, to produce strong and even seedlings. In the event of torrential rains, the water running along slopes into furrows does not flood the rows and this means that no crust will form.

This spring has also been characterized by a further expansion of fields for precision and close-hill seeding with bare and swollen seeds. Planting a fixed number of them has become an indispensable element of the technology of numerous kolkhozes and sovkhozes in the Tashkentskaya, Dzhizakskaya, Syrdarinskaya, Namanganskaya and Samarkandskaya oblasts. This technique has also found active proponents in other parts of the republic.

"We have tried the precision method of seeding and last year got more than 53 centners of cotton from every hectare," says Kholzhamkul Rustamov, crew chief of the sovkhoz imeni Budennyy in the Surkhandarinskaya oblast. "Now all the crews and teams of all seventy planting aggregates at the sovkhoz are planting seed by a strictly assigned plan. The advantage is a double one: we are saving half in expensive seed and have eliminated the need to thin the seedlings."

Unfortunately, as was the case last year, it is necessary to mention that farm orders for bare seed for precision seeding are far from being fully satisfied. A percentage of the prepared seed has turned out in extremely poor condition. The republican ministry for the cotton industry does not demonstrate the persistence needed to resolve the important issue of specializing small groups of their enterprises to produce high quality planting material.

The technology of cotton planting has been improved by this spring and by the technique of heavily mulched soil. The practice of a number of farms has proven the suitability of this technique to prevent formation of a soil crust. The sovkhoz imeni Pyatiletiya Uzbekskaya SSR and the kolkhozes imeni Tursunkulov Yangiyulskiy and "Politotdel" of the Kommunisticheskiy rayon have also applied mulch layers of loose manure, sawdust or waste material from the hydrolysis industry simultaneously with the seeding last season.

The change to progressive technological seeding methods has required a refitting of equipment and providing it with new capacities. A seeder now must have not only a seeding device but also the capacity for simultaneous application of herbicides, fertilizers and mulching materials and it must be reset for precision seeding and seeding on ridges. The republic's Ministry of Agriculture has provided all sovkhozes and kolkhozes with the necessary recommendations and the work is underway in the farm shops. The volume is huge, however, and for this reason, numerous operators have been assigned as a result of this issue: isn't it time for the enterprises of agricultural machine-building for cotton production (they are primarily located in Uzbekistan and the neighboring cotton producing republics) to produce the equipment that will meet the demands of the new technology.

Planting work in Uzbekistan is already three-quarters finished. The Tashkentskaya, Surkhandarinskaya, Andizhanskaya and Namanganskaya oblasts were the first to finish. The kolkhozes and sovkhozes of the Kashkadarinskaya, Dzhizakskaya and Syrdarinskaya oblasts have provided more than ten percent of the daily increase. Reports of the completion of seeding operations are coming in with increasing frequency from farms and rayons.

Not allowing the best days to go by and carrying out high-quality seeding operations is the main goal of all the farmers of the republic today.

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MAJOR CROP PROGRESS AND WEATHER REPORTING

USSR WEATHER FORECAST FOR JUNE

LD041331 Moscow PRAVDA in Russian 1 Jun 80 p 6

[USSR Hydrometeorological Center report: "Warm Beginnings"--first paragraph is editorial introduction]

> [Excerpts] Summer has begun, but over the greater part of the USSR's European territory we have not been treated to any hot weather. Is nature preparing some surprises for June too? Here is the report received from the USSR Hydrometeorological Center by a PRAVDA correspondent.

In the USSR's European territory the first summer month is expected to be hot. There will be normal rainfall. One or two short cool spells are possible. Rain--mainly heavy showers--is most likely in the first half of the month. The daytime air temperatures will mostly reach 25-30 degrees in southern areas, 20-25 degrees in the middle belt and 10-15 degrees in the north.

In the farming regions of the Urals, Western Siberia and Northern Kazakhstan, nighttime temperatures will be between 11-16 degrees and daytime temperatures between 22-27 degrees, sometimes reaching 30-32 degrees. One or two cold spells are expected reaching 5-10 degrees at night and 15-20 degrees in the day. At times there will be rainstorms.

In the south of Krasnoyarskiy Kray, the Baykal and Transbaykal regions, the month is expected to be hot on the whole, though with significant fluctuations in temperature. The mercury will sometimes rise to 29-34 degrees during the day, while on some nights the temperatures will drop to 2-5 degrees and there will even be ground frosts.

In Amurskaya Oblast, the south of Khabarovskiy Kray and Primorskiy Kray, moderately warm weather is expected: the daytime temperatures of 18-23 degrees will increase and reach 25-30 degrees.

On the Arctic Sea coasts the nighttime temperatures will still be freezing, reaching 5 degrees below zero. But on the warmest days air temperatures will reach 10-15 degrees above zero. In the mainland zones of Yakutskaya ASSR and Magadanskaya Oblast, temperatures will reach 20-25 degrees at times.

In Central Asia and in the south of Kazakhstan the mercury will mostly rise to 30-35 degrees and sometimes to 40 degrees. In the Kirgiz SSR temperatures will be approximately 5 degrees lower.

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MAJOR CROP PROGRESS AND WEATHER REPORTING

COLD SPRING RETARDS PLANT GROWTH

Riga SOVETSKAYA LATVIYA in Russian 14 May 80 p 2

[Article by V. Knava, agrometeorologist: "Weather and Sowings"]

[Text] Under the conditions of the cold weather of this spring, development of vegetation is proceeding inactively and lagging behind the mean periods of many years. In the beginning of May, for example, mean daily air temperature did not exceed 1-6°C, which is 2-5 degrees below the norm. On 4-5 May snowfalls were observed on the fields of primarily the eastern rayons of the republic; a snow cover was formed to a height of 1 to 14 centimeters, which lay for 1-2 days. In the sunny warm days of 7-9 May, when the maximum temperature of the air rose to 13-18°C (Daugavpils--20°C), the soil dried and the spring field work again went into full swing.

The number of sunny hours in the first 10-day period of May was 70-80 for the republic's western rayons and 40-60 hours for the rest. The leaves continued to unfurl on wild-growing and berry bushes, the birch and maple blossomed; in many orchards, buds opened up on fruit-bearing trees.

Winter grain crops on most fields are entering the stem extension stage, while in the southern rayons of Latvia, stems have started to grow in winter crops. The results of air examination of winter sowings carried out toward the end of April and the early part of May showed that of the examined 87,000 hectares about half of the sowings were in a good condition, 40 percent were satisfactory and 12 percent--poor.

Seedlings have appeared of early (prior to 20 April) sowings of barley; in later sowings, germination of the grain was observed 4-8 days after sowing. Moisture reserves in the plowed layer of the soil with spring grain crops are in normal limits.

Grass is growing slowly. Linear increment in the first 10-day period of May was only several centimeters. In most rayons stem formation was noted in clover, its height here was 8-15 centimeters. Approximately the same height was achieved by meadow grasses. Moisture reserves under the grass in the half-meter layer of the soil are within normal limits.

In the immediate days ahead, the weather is expected to be without precipitation, which would be favorable for work in the fields.

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ESTONIAN FIELD WORK PROGRESS OUTLINED

Tallinn SOVETSKAYA ESTONIYA in Russian 29 Apr 80 p 1

[Interview with First Deputy Minister of Estonian SSR Agriculture Il'mar Yulisovich Aamisepp by SOVETSKAYA ESTONIYA correspondent V. Repetskiy: "The Tactics of Sowing"]

> [Text] A time of responsibility has set in for farmers of preparing for and carrying out the sowing.
>
> A SOVETSKAYA ESTONIYA correspondent met with First Deputy Minister of Estonian SSR Agriculture Il'mar Yulisovich Aamisepp and asked him to answer a number of questions relating to carrying out of the sowing.

[Question] Our meetings at this time have become traditional. But we know that despite the seeming uniformity not a single year nor a single time resembles another. I thus would like to the talk of the differences of the present spring.

[Answer] We are talking today on the threshold, more precisely on the step of the spring of the final year of the Tenth Five-Year Plan. This circumstance imposes special obligations on agricultural workers. It should be admitted that there are still lagging sectors in the work of fieldworkers, there are farms whose farmers have not fully fulfilled the targets of the first four years of the five-year plan. For this reason, work will have to be arranged in such a way this year as not only to rectify the situation, not only to meet the targets of the five-year plan as a whole, but also to lay the foundation for the further intensive development of the fieldworking sector.

[Question] What then will the main efforts of the farmers be concentrated on?

[Answer] First there is the task of further increasing grain production primarily through increasing crop yields. And, second, it is necessary to significantly increase forage stocks, especially, and in the first place, feed from grasses. Special attention will be paid to raising the quality of procured fodder.

[Question] Tell us, please, how they are preparing for the spring start on the farms.

[Answer] I can say with full responsibility much better than at any time in the past. Here is confirmation of what I have said.

The republic is fully provided with seeds. And all the seed material is quality material. It is enough to say that only seeds of grain crops will go into the soil that fully conform to the requirements of first and second classes. More than half of the seeds for grain crops are made up of intensive varieties.

There is also a sufficiency of seeds of perennial grasses, likewise of the necessary standards; there is a sufficiency of seeds for corn, potatoes, food tubers. It would be desirable to get more seeds for leguminous crops, particularly peas, but this evidently will not be done.

As of 1 April, 7 percent more organic fertilizer than last year was taken into the fields. We hope that each hectare set aside for spring sowing will receive about 20 tons of organic fertilizers, which significantly exceeds the indicators of prior years.

As for the readiness of tractors and agricultural equipment, if my memory does not deceive me, you called one of your pieces of reporting "At Least Tomorrow into the Fields." This title possibly describes more accurately the degree of readiness of the machine-tractor park to carry out spring field work.

It is important to point out that all the tractors which will be in use in the spring work are provided with operators. It is true that at some farms there are not enough tractor operators as before, but this spring work will include having on tractors representatives of different vocations who have acquired the specialty of tractor operator. In addition, almost 1,000 operators from patronizing enterprises, construction projects and organizations.

This spring we shall carry out the spring sowing in most close contact with specialists belonging to the system of the State Committee of Sel'khoztekhnika. They are ready at our first request to come to our aid, especially to farms which may suddenly be lagging for one reason or another.

[Question] Now, please, tell us about the tasks facing farmers in the immediate days ahead.

[Answer] The main strategic task is to carry out the spring sowing as early as possible. Under the conditions of our republic, the best agrotechnical times signify an early sowing.

In my 30 years of work in agriculture, I do not remember an instance where even a single farm suffered from conducting its sowing operations early. But, on the other hand, I remember, unfortunately, any number of instances where farms in the fall failed to get needed quintals only because they were late with the sowing.

Despite a very slow emergence of the spring, even though the snow had disappeared rather early, it is possible to do field work on light soil and selective sowing even today at most of the farms. This is what they are doing on the farms of Khiumaaskiy, Kingiseppskiy, Khar'yuskiy, Rakvereskiy, Pyarnuskiy, Paydeskiy and Tartuskiy rayons.

[Question] The fulfillment of the main strategic task, as you put it, requires handling successfully a number of priority tactical matters...

[Answer] That's quite true. I shall mention some of the most important ones that can't stand delay.

First of all, those farmers are on the winning side which are the first to deal, before the onset of mass field work, with the spreading of fertilizers and with stone removal. It is necessary to take into consideration that under our conditions stone removal and fertilizer spreading constitute about 60 percent of the total volume of spring field work.

Those farms are proceeding correctly which devote their main attention to this today. I shall cite as a positive example the kolkhozes and sovkhozes of Khiumaaskiy rayon where minderal fertilizers have already been applied to most of the fields. The same thing is happening on the farms of Kingiseppskiy Rayon.

In regard to stone removal, it is important to concentrate on this work at one time maximum equipment and working hands. Those farms are acting improperly which diffuse their efforts by sending some to do stone removal and others to other work. All this work cannot be carried out simultaneously with the spring sowing. I repeat--only the mobilization of all efforts for freeing the fields of stones prior to the start of outright spring field work will allow the sowing to be carried out in minimum time with minimal expenditure of manpower resources and equipment.

[Question] When, according to the forecasts of the meteorologists, will it be possible to start mass sowing?

[Answer] This year the most favorable time for sowing will be the first 10-day period of May.

[Question] But aren't there many holidays and days off at that time?...

[Answer] Yes. May Day and the 35th anniversary of Victory--these bright and wished for holidays coincide with the most favorable period for carrying out the sowing. I am certain that every farming worker understands this. I am deeply convinced that farmers and machine operators on the republic's kolkhozes will spend these days in the fields because these are the days that largely decide the fate of the harvest. Of course, farm directors must think out carefully ahead of time when to give those engaged in the sowing time off and to arrange, of course, remuneration of labor in accordance with existing legislation.

[Question] How will control be exercised over the quality of the sowing?

[Answer] As you know, a great deal of attention is devoted each year to the performance of spring field work. But a significant defect has existed in this work. According to existing tradition, the quality of the sowing was assessed after the seedlings came up. Of course, the educational value of such a method cannot be doubted; the best were rewarded both morally and materially; those who failed receive their due. But one thing was unfortunate: it was already too late to rectify anything.

This year a quality inspector will be designated on each farm from among the most skiled and leading agronomists for the period of the spring field work. His task is, together with the heads of units, to keep track daily of precision of adherence of fulfillment of all agrotechnical procedures in the spring work. And what is especially important is that on observing a fault to immediately oblige the guilty party to redo the work. In brief, on cases of poor-quality work being detected early, it will now be possible to immediately eliminate the deficiencies.

In conclusion, I would like to wish fieldworkers and machine operators success in carrying out the spring field work, for the fate of the harvest in the concluding year of the five-year plan largely depends on it.

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PROBLEMS IN THE WAY OF SOWING PROGRESS IN LITHUANIA

Vilnius SOVETSKAYA LITVA in Russian 14 May 80 p 1

[Article issued by the Lithuanian Ministry of Agriculture: "To Hold Each Hour Dear"]

[Text] The spring sowing in the republic is the cause of much concern in many places: less than half of the spring crops have been sown on the farms.

In some places, all sowing work is not sufficiently well organized; equipment is not used productively, nor is it well assembled or serviced. Many cases are to be found where gaps occur between preparation of the soil and the actual sowing. The big tractors are not operated on a two-shift basis on all the farms, and the sowing links are not working an extended workday everywhere. Sowing work should be speeded up first and foremost by farm heads and specialists in Anikshchyayskiy, Ionavskiy, Kayshyadorskiy, Kaunasskiy, Paneveshskiy, Tauragskiy, Shirvintskiy and Yurbarkskiy rayons.

There is also concern because the sowing of sugar and fodder beet, flax, legumes and the planting of potatoes and seedlings are being dragged out.

Under today's conditions, it is important to use each working hour as effectively as possible. Farm heads and specialists must take without delay effective measures to ensure maximal sewing tempi. With this end in mind, all farms have to make more productive use of machinery, assemble equipment in the required manner, organize its group work, provide it well with fuel and effectively eliminate breakdowns. It is essential to make sure that equipment is not left idling anywhere, which still does happen. The operation of all high-power tractor should be organized on a two-shift basis. The acceleration of sowing work requires help in the form of equipment and machine operators from other organizations. It is very important to sow as fast as possible on soil that has been prepared for sowing. There should be developed a practice in the rayons where farms that have completed their sowing send their equipment and operators to those places where this work is lagging.

No matter how hard-pressed one might be for time, the quality of work must not be neglected. In determining sowing norms, it is necessary to be guided by the recommendations of scientific institutions and to sow only well treated seeds, embedding them to the necessary depth. For seedlings to be more uniform in emerging, it is necessary to pack the sowings with a roller.

The protracted, cold spring is very conducive to weed growth. Consequently they must be dealt with intensively through good cultivation of the soil, harrowing it before the sowing and before and after the emergence of seedlings. The mechanical means of dealing with the weeds should be ably combined with chemical ones.

In each rayon there is a greater or smaller area of dead winter crops. They must be resown as quickly as possible with spring grain crops. Those sectors of land on which it was impossible earlier to use equipment because of a surplus of moisture must also be completely sown.

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LITHUANIAN SOWING PROGRESS REPORTED

Moscow IZVESTIYA in Russian 21 May 80 p 1

[Article by IZVESTIYA correspondent I. Kasyukov, Litovskaya SSR: "Sow on Time and You Harvest More"]

[Text] This is what the Lithuanian masters of big harvests believe. And today, one might say, that their call has been picked up on all of the republic's farms. This year the farmers of Lithuania assumed bigger socialist commitments--to take in on the average no less than 28 quintals of grain per hectare, almost 170 quintals of potatoes, more than 140 quintals of vegetables and 25 tons of beet.

...Together with I. Mikhal'kevich, the secretary of Shal'chininkskiy Rayon Committee of the Communist Party of Lithuania, I am making a tour of kolkhoz and sovkhoz fields. After two weeks of cold weather accompanied by morning frosts and snow, the long-awaited warm weather has arrived and meadows and pasturages have turned green, winter crops, which bore the cold very well, have started to grow favorably, and the seedlings of spring grains have appeared. The external signs of a good harvest are being bolstered by good agrotechnics, clear-cut, efficiently organization of labor used in the sowing of spring crops.

Managerial foresight made it possible to repair equipment with a high level of quality and, what is most important, to include in field work with the onset of spring practically the entire tractor park. The results exceed all expectations. Shal'chininkskiy Rayon farmers were the first in the republic to complete the sowing of grain crops in seven workdays. By the end of the second 10-day period of May, more than nine-tenths of spring-crop fields had been sown in the rayon. The same figures apply to last year, when the sowing was approximately large, although field work was then started considerably earlier.

The farms of Varenskiy, Lazdiyskiy, Zarasayskiy, Trakayskiy and other rayons of the southeastern zone where light soils predominate are close to completion of the sowing of spring crops. Four-fifths of all spring crops have already been sown for Lithuania as a whole. In some rayons 15 or more percent of the spring fields have been sown in the course of one day.

The protracted spring increased field work to the limit. Time exerts its pressure. Simultaneously with the grain crops, they are sowing grasses and flax and are planting potatoes, beet and vegetables. In Shal'chininkskiy Rayon, they began sowing corn for silage last week. Seeds specially treated against the action of cold weather were supplied by their neighbors --Belorussian kolkhoz farmers.

The fields in Lithuania are hilly. The soil on hillocks ripens sooner than in the low places. For this reason, sowing is carried out selectively. Of course, they admitted to me at one of the kolkhozes in Lazdiyskiy Rayon, this is troublesome work. Some fields have to be sown in two-three visits. In each case, moreover, it is necessary to select tools that are suitable for the relief. But, on the other hand, all the seeds go into the soil at the most optimal times, guaranteeing a big yield.

A good sign of this spring is the fact first-rate seeds are being sown everywhere. Areas for leguminous crops are being expanded. This circumstance is particularly gladdening to animal-husbandry workers.

The observance of seed-embedding depth norms in sowing and quality postsowing cultivation are being kept track of as in previous years by control posts headed by deputies of local soviets.

Unfortunately, even this year the sowing is not without sorry lapses and blunders. And the reasons for them are not to be found in the caprices of the weather. They are the result of unsatisfactory preparation on the part of some farms for the period which is responsible for deciding the fate of the harvest. In some places in Panevezhskiy and Tauragskiy rayons, they allow an excessively large gap between preparation of the soil and the sowing; on farms of Akmyanskiy Rayon breakdowns of tractors are frequent and the powerful T-150's are not being used everywhere on a two-shift basis.

The quick elimination of the defects will make it possible to create conditions for obtaining a big harvest in the final year of the five-year plan.

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PLANTING PROGRESS ON VIRGIN LANDS OUTLINED

Moscow IZVESTIYA in Russian 1 Jun 80 p 1

[Excerpted article by Ye. Dutov, head of department of Kustanayskaya Oblast newspaper LENINSKIY PUT', and IZVESTIYA correspondent G. Shepit'ko]

[Excerpts] On Kazakhstan's virgin lands, sowing has been completed on 23 million hectares. The first to finish were the workers on the steppe along the Ishim River. This year grain crops in Tselinogradskaya Oblast take up 2.8 million hectares; 2.3 million hectares of these are sown with wheat. Despite the difficulties of this year's spring, the sowing was completed in 10 days. The farmers of the largest granary in the republic, that of Kustanayskaya Oblast, carried out the sowing campaign in an organized manner. The last hectares of grain crops have been sown by the farms of Kokchetavskaya, Severo-Kazakhstanskaya and Turgayskaya oblasts.

The spring presented the farmers with many surprises. But the machine operators set up against the difficulties clear-cut organization of labor and completed in a timely manner the complex of operations relating to the preparation of the soil. For example, in Tselinogradskaya Oblast, 250,000 hectares were planted daily. The able operation of 700 complexes made it possible to complete the sowing five days ahead of time. The links of maintenance workers and units handling everyday, cultural and medical services worked efficiently. Last year, the oblast's farms grew an average of 17 quintals of grain per hectare, this year they are trying not to get less.

The farmers of other oblasts of North Kazakhstan have big commitments. For example, the farms of Kustanayskaya Oblast decided this year not to take in less than 5 million tons of grain of the strong and hard wheats. A competition was launched in the oblast to obtain one billion poods of grain in the Tenth Five-Year Plan.

Today the virgin lands are the biggest producer of high-quality grain. On the average more than 10 million tons of grain go from here into state granaries. This year the farmers decided to reach high levels in grain production. Today sowing of grain crops has been completed everywhere. The sowing of buckwheat and other crops is coming to an end.

In a little while, the fields get green. For rural workers, a new and responsible period is beginning--fodder procurement. At the storage places, the first tons of hay and haylage have begun to arrive. A reliable foundation is being established for public livestock.

Each virgin-land farmer and each worker in the republic is striving to mark the last year of the Tenth Five-Year Plan with a high level of production of agricultural products.

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MAJOR CROP PROGRESS AND WEATHER REPORTING

FIELD WORK PROGRESS IN TSELINOGRAD REVIEWED

Alma-Ata KAZAKHSTANSKAYA PRAVDA in Russian 21 May 80 p 1

[Article by special correspondent V. Vasilenko, Marinovskiy Rayon, Tselinogradskaya Oblast: "Strictly According to Plan"]

[Text] There was little snow last winter in Priishim'ye, but thanks to the fall rains and spring showers the arable land has received a good supply of moisture.

For several days prior to going into the field the brigade leaders of the Krasnaya Zarya Kolkhoz, along with the specialists, once again have been improving the work schedule and making corrections in the technological plan for the sowing. Everyone on the farm has the same goal -- to consolidate the success we have achieved in the republic's jubilee year.

In 1979 K. Shakhanova, Komsomol-youth brigade leader, obtained a record grain yield -- an average of 23.7 quintals per hectare, leaving behind her constant rival brigade leader A. Lada, who possesses an honorary astronauts' pendant. The current competition will be hot; everything points to it. The brigades have been carefully prepared for the sowing; mutual inspections have made it possible to eliminate even tiny shortcomings.

Machine operators Zeynulla Tautekov, Vladimir Shtrom, Anatoliy Uzel'man, and Petr Shvester were the first to begin selective field work. The volume of work is tremendous. Last fall the reaping was somewhat drawn out; therefore, many fields were not cultivated. But still they were able to turn over the autumn plowland on those fields where wheat is located as the third and fourth crop after fallow. The stubble background made it possible to retain the snow and moisture. In the early spring the BIG leveled the soil surface and stimulated the weeds. After the warm days they entered the growth stage, and now the machine operators are clearing the fields for them.

S. Boranbayev, the kolkhoz's chief agronomist, says, "We have a choice of implements. Therefore, depending on the condition of the field and the thickness of the wild oats we use the KPSh-9 or KPE-3.8 wide-swath cultivators in the pre-sowing cultivation. On individual fields we use stubble breakers with sharpened discs. Some areas are cultivated in two passes as necessary. And then we sow immediately. The Kirovtsev drivers Sultan Biteupov, Anatoliy Astashkin, Nikolay Babenko, and their comrades were the first to take the units out.

On the farm the equipment is used complexly. So that the units do not stand idle because of breakdowns, teams of expert adjusters supplied with the necessary equipment and spare parts have been organized in all three brigades.

The kolkhoz board and party committee are paying special attention to the organization of labor and mode of life of the machine operators. Field camps with dormitories, dining rooms, and reading rooms have been outfitted for all the brigades. Vendor-less booths are in operation, and a mobile store comes according to a schedule, filling the machine operators' orders. Here is another interesting detail: the accountant records the machine operators' wages daily on the indicator board along with their output.

The kolkhoz has a good tradition -- it congratulates the leading workers directly in the field. The agitbrigade organizes concerts in their honor. Such attention raises the people's spirits, and they work enthusiastically.

The farm plans to complete the sowing in 8 to 10 workdays, and the machine operators hare keeping to the work schedule.

Commentary on Priishim'ye Field Work

The mass sowing of grain is underway in all rayons of the oblast. Deputy Chief of the Tselinogradskaya Oblast Agricultural Administration Veniamin Konstantinovich Khan comments on the course of the field work in the Priishim'ye:

This year grains will occupy 2.8 million hectares here. The volume of work is huge. To complete it on time, the farms concentrated all their equipment in 634 complexes formed on the basis of brigades. Long before the exodus to the fields seminars were held in the oblast center and in the rayons; scientists from the All-Union Scientific Research Institute of Grain Farming and specialists discussed the special features of agricultural practices given the conditions of the current spring and made recommendations to the field-crop growers.

Technological maps and work plans for the sowing were drawn up on all the farms and in all the brigades. Special attention was focused on the highly productive use of the Kirovets tractors. At present they are being used for more than half of all the operations and three quarters of just the sowing. Half of the Kirovets tractors are assembled to work in two shifts. The oblast is making do with its own forces. During the spring an additional 5,000 machine operators were trained on the sovkhozes and in the towns and rayon centers; they have come to the aid of farms in Krasnoznamenskiy and several other rayons which did not have enough cadres. Party and Komsomol groups and people's control posts which, along with the agronomists, oversee the work quality were set up within the complexes.

The units were equipped mainly with anit-erosion implements and machines. The pre-spring cultivation of the soil was strictly differentiated -- depending on the agronomical background, soil salinity, moisture, and peculiarities of crop cultivation. Currently the volume of operations performed by flat-disc implements constitutes two thirds of the total.

We are locating almost half of the wheat on areas after the best precursors, including 40,000 hectares after fallow. Barley and other soil improving crops have been sown earlier in Priishim'ye soils of many solonetz complexes, with consideration for their peculiarities. Mineral fertilizers will be applied simultaneously with the seed on one fifth of the grain area.

The quality of the sowing is the main indicator by which the machine operators' work is evaluated. It should be said that they are achieving it by adherence to the set pace. So that the wheat is sown at the best time -- before 25 May, the units in the oblast must have a daily output of 200,000 to 220,000 hectares. We think that it will be higher at the "peak" of the word.

Farm and brigade collectives have taken on increased obligations in honor of the republic jubilee.

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MAJOR CROP PROGRESS AND WEATHER REPORTING

FIELD WORK IN KHAKASSKAYA AUTONOMOUS OBLAST

Moscow SEL'SKAYA ZHIZN' in Russian 20 May 80 p 1

[Article by P. Zinkeyev, Khakasskaya Autonomous Republic: "Producing a Full-Weight Ear"]

[Text] The farmers of Khakasiya must complete a large amount of field work in the near future. Almost 340,000 hectares await spring plowing and cultivation with sweeps. A still larger area must be put into grains. This is why 1,500 units went into the fields as soon as the soil was ready.

In the zone of risky farming the fight for moisture is extremely important for the harvest. At the beginning of the vegetative period it is necessary to have no fewer than 1,800 tons of water per hectare in the meter soil layer in order to produce 18 quintals of grain per hectare, as has been planned, for example, by the farmers of the Znamenskiy Sovkhoz. At the present time there are 1,100 tons in reserve. This is a gift of nature, as we say. The rest is in the hands of grain farmers. In Znamenskiy Sovkhoz everything possible was done to provide an agronomic basis for its goals. Crop rotations have been introduced and assimilated, strip farming is being utilized on half the plowland, the non-mouldboard method of soil cultivation is being utilized on 7,200 hectares and 2,000 hectares are in stubble.There was concern shown for good supplies of organic fertilizers. Mineral fertilizers are applied only by means of the local method with the aid of 14 sowing units. All seeds of regionalized varieties of first and second class were irradiated with the aid of lasers to increase their vitality.

In Khakasiya there are many other enterprises that are dealing complexly with the problem of farming under drought conditions and are producing good harvests. About 300 soil conservation crop rotations have been assimilated, the strip distribution of crops has been introduced and hundreds of thousands of hectares are being treated with counter-erosion equipment. The proportion of fertilizers is growing and the fallow fields are being expanded. However, errors have been made.

In Bogradskiy and Shirinskiy rayons along the field roads that I chanced to travel the plowed strips usually do not bend round hills but go up and down. Isn't there a danger of water erosion on such fields? Scientists recommend that soil be cultivated and sown across the slope or along the contour. Hole-digging and other methods should be utilized.

Sowing with SZS-2.1 stubble sowers has been justified. According to the oblast agricultural experimental station, this method increases the yield of grain by 3.8 quintals per hectare as compared with mouldboard fields. It is gratifying that this method is being more and more widely utilized.

Everyone knows how important the role of crop rotations is for soil conservation. Why have 66 crop rotations in the oblast not yet been assimilated? The distribution of crops is not always regulated--14 percent of grain crops occupy the same fields 3-4 years in a row. Sometimes, as happens in Bogradskiy Rayon, new grain fields are "squeezed" into established crop rotations, thus violating the entire system. In Askizskiy Rayon 15 crop rotations have not yet been established; in Ust'-Abakanskiy--33. This is still a minus for productivity.

But the most alarming thing is that during this year's sowing period Khakassya farmers have begun work without a full supply of conditioned seed and an incomplete system for applying fertilizers. At the beginning of field work there were 19,900 tons of third-class seeds which were weed infested. What kind of shoots can be expected from them?

This grain is put into poorly-fertilized soil. Moreover, according to the data of the Abakanskaya zonal agrochemical laboratory, the mineral fertilizers available to oblast sovkhozes and applied by the local method can secure an increase of 30,000-50,000 tons of grain. How are resources utilized? At the present time only 150 kilograms of every ton are applied locally, with the remainder applied by scattering. Half of the possible manure is applied.

This spring requires coordination and precision in work from the oblast farmers because of the late sowing schedule. Arranging the entire cycle of agricultural measures, making sure that the factors working for the harvest are weightier than those working against it--these are the important goals of farmers. When this is accomplished the hopes of farmers for full-weight ears in the fields of Khakasskaya Autonomous Oblast will finally be fulfilled.

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MAJOR CROP PROGRESS AND WEATHER REPORTING

CROP PROGRESS IN NORTHERN KAZAKHSTAN

Moscow SEL'SKAYA ZHIZN' in Russian 30 May 80 p 1

[Article by A. Kostyukov, Tselinograd: "In the Best Time"]

[Text] The grain farmers of Northern Kazakhstan are completing the sowing of spring grains. On millions of hectares seeds have been placed into moist, well warmed soil. No less importantly, the seed was sown on schedule during the most favorable 10-day period for the zone. In all rayons it was possible to await the mass appearance of weeds and to clear the fields of them before the optimal sowing time.

There is every reason to hope for a good harvest. In Tselinogradskaya Oblast, for example, about half of the wheat was sown after the best predecessors, including 400,000 hectares on clean fallow. The structure of sowing areas has been corrected in consideration of past experience. In enterprises where immature grains are caught in August frosts the proportion of rapidly-maturing barley is increased. Two-thirds of the total volume of field work has been fulfilled using counter-erosion technology.

Virgin-lands enterprises are still not sufficiently supplied with phosphorus fertilizers, and the return on them here is great. For this reason at agronomists' meetings and conferences of machine operators the following requirement was heard persistently--phosphorus fertilizers were to be applied only in rows during sowing. This accomplished the job. Most of the fertilizer was put into the soil together with the seed.

At the present time machine operators are sowing grey grains and making supplementary sowings of millet and corn for silage. But the "flashes" and battle pamphlets which are in large supply at the stands near field stands still preserve the fervent breath of great and difficult work. Here is a "flash" informing the machine operators of the Tselinograd Ivanovskiy Sovkhoz that Komsomol member Genadiy Pokatovich sowed 107 hectares in one day on a K-700 as compared to the planned 34. In Kokchetavskaya Oblast Hero of Socialist Labor Yesil'bay Kadralin became the leader in competition under the motto, "Grain Farmers' Guarantee for Harvest 1980." Record achievements have recently been registered in Pushkinskiy Sovkhoz of

Severo-Kazakhstanskaya Oblast. Tractor operator Asker Agzamov, working on the Kirovets, sowed 135 hectares in wheat.

The shoots will provide the final evaluation of the quality of work done by the machine operators. Actually, they are already doing this. On fields sown with the first seeds the delicate plants are already visible. Agronomists are satisfied because the shoots are strong, uniform and capable of producing good ears.

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MAJOR CROP PROGRESS AND WEATHER REPORTING

WORK PROGRESS IN ALTAYSKIY KRAY

Moscow SEL'SKAYA ZHIZN' in Russian 24 May 80 p 1

[Untitled article by A. Torichko, Altayskiy Kray]

[Excerpts] The endless Altay fields are humming with thousands of sowing units. But if one starts up a conversation with a grain farmer, he will without fail recall the winter. There was little snow, the soil practically did not accumulate vernal moisture and in addition the fields were subject to sun and wind early.

"The existing situation," says the deputy director of the kray agricultural administration, A. B. Mishin, "determines the strategy and tactics of field work. The main goal is to maximally retain moisture in the soil during all of the agrotechnical operations."

The situation is made more difficult by the fact that a cold spring slowed down the appearance of weed shoots and made pre-sowing cultivation more difficult. In order to complete work in optimal time enterprises have equipped high-speed units and organized around the clock work.

Communists and all grain farmers in the largest granary of Siberia understand well that on fields where grains alone will occupy 4.6 million hectares, a large harvest can be produced only by means of great and intense labor, on the basis of the entire complex of agrotechnical, organizational and ideological measures.

This year Altay farmers have done a great deal to produce a large harvest and to put no fewer than 4 million tons of grain into state granaries, including 1.5 million tons of hard, strong and valuable varieties of wheat. Almost double the amount of organic fertilizer will be put into the soil this year as compared to last. In addition, 70-80 kilograms of mineral fertilizers per hectare will be applied. Over half of the planned wheat crops will be put in after fallow or a second crop or in the furrows of perennial grasses. Good quality seed will be used for sowing, 85 percent of which are either first or second class in the sowing standard.

Altay grain farmers have given special attention to crop structure with a view to increasing the return on each hectare of plowland. A weighty increase in yield, for example, is expected from expanding the area in the promising wheat varieties Novosibirskaya-67, Tselinnaya-20, Omskaya-9, Altayskaya, Almaz and others, which will occupy 1.1 million hectares, or double last year's area. There has been a significant increase in the area in millet, buckwheat, legumes. The cultivation of sunflowers is being placed on an industrial technological basis.

From the foothills of Salair the front of field work has moved to the west, to the Kulundinskaya Steppe. The sowing of all spring crops that are cultivated in the Altay is in full swing.

The first to complete the sowing of early grains were the grain farmers of Altayskiy Rayon. Reports are being received about the conclusion of sowing in the enterprises of Kamenskiy, Yegor'yevskiy, Krasnogorskiy, Smolenskiy and other rayons. Sowing spring crops on schedule means utilizing summer precipitation, protecting crops from frost in the fall and completely harvesting and preserving the future harvest in Siberia.

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FIELD WORK IN URAL'SKAYA OBLAST

Moscow SEL'SKAYA ZHIZN' in Russian 30 May 80 p 1

[Article by B. Kuznetsov, Ural'skaya Oblast: "In the Best Time"]

[Text] The sovkhozes and kolkhozes of Ural'skaya Oblast are widely introducing a wheat variety that was locally developed--Ural'skaya Yubileynaya. This year it was used to sow over 10,000 hectares of plowland.

In grain crop rotation an important place is being occupied this year by millet, which is represented by two main varieties--Saratovskoye-3 and Ural'skoye-109. Both varieties surpass the traditional Saratovskoye-853 variety in productivity and quality of grain. For example, the average productivity of Ural'skoye-109 during the last 3 years has been 16.4 quintals as compared to 15 quintals obtained from a hectare of Saratovskoye-853.

The rapid sowing campaign has stretched out unusually. The warm weather has resulted in the active growth of weeds. In order to completely destroy them, the station has delayed the start of work by sowing units. The lag was used effectively to perform additional soil cultivation.

Machine operators T. Kudesov, M. Dushanov, G. Mikhaylenko, M. Kudaybergenov, V. Tvaranavichus and others performed shock labor in this area. Tractor operators Vasiliy Lykov, Vladimir Vavilin and Gennadiy Tabakov overfulfilled norms on test plots of scientific divisions. They are all involved in the production of the highest quality seed that will provide a good foundation for succulent ears in crop-rotation fields of sovkhozes and kolkhozes of the oblast and that will encourage the growth of productivity of a hectare of grain in the steppe Priural'ye.

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MAJOR CROP PROGRESS AND WEATHER REPORTING

GRAIN, PULSE CROP PRODUCTION IN VOLGA REGION REVIEWED

Saratov STEPNYYE PROSTORY in Russian No 3, Mar 80 pp 52-56

[Article by B.P. Martynov, Deputy Minister of Agriculture for RSFSR: "More Grain for the Homeland"]

[Text] The Volga region and Orenburgskaya Oblast are the largest agricultural regions in the Russian Federation. They occupy a leading position in the harvesting of grain, sunflowers, sugar beets, vegetables, fruit, meat, milk, wool and other farming and animal husbandry products.

As a result of the planned implementation of the decisions handed down during the March (1965) Plenum of the CC CPSU, the logistical base of kolkhozes and sovkhozes was strengthened considerably here and a great volume of work was carried out in connection with the construction of modern irrigation systems and watered tracts based upon local runoff. In recent years the scientific institutes have created and turned over to production operations many valuable and highly productive varieties of grain and other agricultural crops and they developed and introduced into operational practice a number of progressive technologies for tilling the soil, applying fertilizers and cultivating various crops. All of this has made it possible to improve the fertility of the fields and to raise their effectiveness.

The production of all types of farming and animal husbandry products has increased generally throughout the region as a whole. In the case of grain, the yields during the years of the Tenth Five-Year Plan exceeded considerably the average annual indicator for the 1961-1965 period (see Table 1). Owing to the placing in operation of new flooded areas, the production of rice in Astrakhanskaya Oblast increased by almost 40 times during the mentioned period, reaching in excess of 124,000 tons.

However, the use of material resources and economic levers for the purpose of increasing the production of agricultural goods was not effective to a like degree in all areas. Whereas in Orenburgskaya Oblast the gross yields of grain during the Tenth Five-Year Plan, compared to the Seventh Five-Year Plan, increased by 80 percent, in the Bashkir ASSR -- by 71, Ul'yanovskaya

Oblast -- by 67, in Penzenskaya, Volgogradskaya and Saratovskaya oblasts the figures were only 41, 32 and 29 percent respectively.

A principal impediment along the path leading to steady growth in agricultural production throughout the region continues to be that of unstable farming. Although during some years the kolkhozes and sovkhozes, in terms of the cropping power of their grain crops, achieved the goals called for in the complex program of measures aimed at raising the fertility of the soils by the end of the five-year plan, or even surpassed them, during other years very low yields were obtained (see Table 2).

TABLE 1

Average Annual Production of Grain

Oblasts and Autonomous Republics	1961-1965	1976-1979	% of Growth
Astrakhanskaya	77	230	299
Volgogradskaya	4207	5571	132
Kuybyshevskaya	1991	3295	165
Penzenskaya	1568	2224	142
Saratovskaya	4109	5315	129
Ul'yanovskaya	1149	1920	167
Bashkir ASSR	3121	5329	171
Kalmyk ASSR	395	581	147
Tatar ASSR	2390	3441	144
Orenburgskaya	3606	6504	180

Last year the production of grain in the Kalmyk ASSR amounted to 22 percent of the 1978 level, in Volgogradskaya and Saratovskaya oblasts -- 32 and 34 percent respectively.

This adversely affects the economies of the kolkhozes and sovkhozes and especially in connection with the development of the animal husbandry branches. For example, in 1979 the procurement plan for coarse and succulent feeds in the Kalmyk ASSR was fulfilled by only 40 percent and in Astrakhanskaya and Penzenskaya oblasts -- by 61 percent. For one standard head, 3.8, 8.5 and 10.7 quintals of feed units were procured respectively. In the Kalmyk ASSR, one feed unit contains only 86 grams of digestible protein and in Volgogradskaya Oblast -- 90, against a norm calling for 110 grams.

The unstable nature of farming is usually explained by unfavorable weather conditions. But the droughts which occur in the Volga region and in the southern Urals area are not random happenings but rather a typical feature of the climate. In countering these droughts by employing an entire arsenal of resources, we must at the same time carry out our agricultural production in a stable manner. In those rayons and on those farms where a high level of farming culture has been achieved, the labor of the farmers

TABLE 2

Cropping Power of Grain Crops, quintals per hectare

Oblasts and Autonomous Republics	Called For In Complex Program	During Current Five-Year Plan	
		Maximum	Minimum
Astrakhanskaya	14	13.9	7.8
Volgogradskaya	18	19.7	6.8
Kuybyshevskaya	20	19.8	11.3
Orenburgskaya	16	16.3	9.2
Penzenskaya	20	17.3	8.9
Saratovskaya	18	20.4	6.9
Ul'yanovskaya	21	19.5	11.8
Bashkir ASSR	20	20.3	15.9
Kalmyk	14	19.0	5.1
Tatar	20	17.2*	12.1

* 1976 data

is usually organized in a better manner and droughts and other unfavorable weather conditions exert less of an adverse effect on agricultural operations.

The main path to be followed for increasing the production of all farming products is that of raising the cropping power of the crops in every possible way. At the present time, highly productive varieties have been created for an intensive type of winter wheat and barley which are capable of furnishing yields of 40-60 quintals per hectare and corn under irrigation conditions -- 100 and more quintals of grain per hectare. But the potential of these varieties is manifested only when good agricultural practices are employed. However, this factor is not always being taken into account. At times, the intensive type varieties are being cultivated using an old technology.

A great amount of work remains to be carried out in mastering the correct crop rotation plans, especially in the Kalmyk, Bashkir and Tatar ASSR's and in Kuybyshevskaya, Ul'yanovskaya, Penzenskaya, Saratovskaya and Orenburgskaya oblasts.

The concent of a crop rotation plan is not only agrotechnical in nature. The introduction and mastering of such plans is always preceeded by an economic evaluation. The land area must be organized in a manner so as to ensure fulfillment of the state's orders for deliveries of various products from both the field crop husbandry and animal husbandry branches. And so long as the crop rotation plans are capable of satisfying these requirements during a definite stage, they must remain unchanged. On 1 November 1979, the crop rotation plans in Volgogradskaya Oblast were considered to be mastered on 94 percent of the arable land set aside for such plans. In accordance with the plans, there should have been 606,000 hectares of fallow fields, whereas the actual figure was only 362,000 hectares. How is it even possible to discuss the mastering of crop rotation plans if the principal element of the grain-fallow-row crop rotation plans is disrupted?

The disruption of a sound system on earth is always fraught with serious consequences. And if this occurs under conditions wherein the principal limiting factor with regard to obtaining a high cropping power is moisture, then any deviation involves even greater risk, since only a fallow field can serve as a reliable guarantee of stability. This then explains why, during the past 4 years, it was necessary to resow 1.45 million hectares of winter crops in Volgogradskaya Oblast, that is, an average of 27 percent of the winter crop fields had to be resown each year.

The overall area of fallow fields must be restored to a scientifically sound amount and they must be tended in the proper manner, with a complete norm of organic fertilizer being applied to them. In this regard, I would like to refer to a well thought out article which appeared in the 3 January issue of the newspaper PRAVDA for this year, entitled "Lessons of a Giant." It was a speech delivered by a sovkhoz director and Hero of Socialist Labor Comrade Angel'yev and it was based upon rich experience. In the history of the mentioned farm there were times when the fallow land was eliminated and the grain harvests decreased. Today they have been restored and the harvests are increasing in a regular manner. This year the workers at the sovkhoz have vowed to obtain 35 quintals of grain per hectare from large areas and to sell 50,000 tons of grain to the state.

The experience of many farms in the Volga region and in Orenburgskaya Oblast and studies carried out over a period of many years by scientific institutes in the region, for example the Kamyshin Plant Breeding Station, also testify to the fact that in the absence of clean fallow it is impossible to ensure guaranteed yields in arid regions.

A fallow and row crop rotation plan, although very important, is not the only element available for increasing yields. Such factors as the timely and high quality preparation of the autumn plowed land, implementing improvements in the soil cultivation work and protecting soils against wind and water erosion must not be overlooked. Provision must be made for this work in the kolkhoz and sovkhoz plans and the agricultural organs must exercise systematic control over it.

In the Volga region and in Orenburgskaya Oblast, the kolkhozes and sovkhozes in a majority of the oblasts and autonomous republics are annually failing to carry out their plans for applying organic fertilizers to the soil. (see Table 3).

In addition to applying the maximum possible amounts of organic fertilizers to the soil, a requirement also exists for preserving the agronomic value of the fertilizers during the course of accumulating and employing them.

Towards this end, the necessary material-technical base must be created and efficient use must be made of the transport facilities and equipment.

TABLE 3

Average Applications of Organic Fertilizers For 1976-1979*

Oblasts and Autonomous Republics	Plan	Actual	%
Astrakhanskaya	566	435	77
Volgogradskaya	5792	3863	67
Kuybyshevskaya	4385	3358	76
Penzenskaya	7118	5931	83
Saratovskaya	6800	4911	72
Ul'yanovskaya	4606	2727	59
Bashkir ASSR	15573	12559	81
Kalmyk ASSR	1004	1115	111
Tatar ASSR	15501	12518	81
Orenburgskaya	5996	6111	102

* 1979 -- data for 11 months

Great opportunities are available for increasing the return to be realized from mineral fertilizers, mainly through the introduction of such effective methods as applying them to the rows simultaneously with the seed being sown (see Table 4).

The work associated with the reclaiming of solonetz lands must be intensified. In the Volga region, solonetz complexes occupy more than 8 million hectares of agricultural land, including 3.2 million hectares of arable land. However, the plans for applying gypsum are being fulfilled by only 20 percent each year and the farms in Astrakhanskaya and Volgogradskaya oblasts and in the Kalmyk ASSR are for the most part not carrying out this type of work whatsoever. A similar situation has developed in Orenburgskaya Oblast. And meanwhile the solonetz lands are very fertile.

A critical problem continues to be that of liming acid soils. During the 1972-1978 period, the arable areas of acid soils in the Bashkir ASSR increased by 272,000 hectares and amounted to 1.49 million hectares, for Penzenskaya Oblast the figures were 261,000 and 2.05 million hectares respectively, the Tatar ASSR -- 45,000 and 1.57 million and Ul'yanovskaya Oblast -- 29,000 and 543,000 hectares respectively. However, the volumes of liming work called for in the complex program were also left unfulfilled (see Table 5).

The task of the oblast and republic associations of Sel'khozkhimiya consists of undertaking urgent measures aimed at neutralizing the acid soils.

During the years following the May (1966) Plenum of the CPSU Central Committee, more than 1.1 million hectares of irrigated land were placed in operation in the Volga region, or almost seven times more than all of the

TABLE 4

Use of Granulated Phosphate Fertilizers for Row Applications
(Average annual indicators for crops during 1976-1979 period)

Oblasts and autonomous republics	Grain crop area provided with superphosphate resources for row fertilization (less requirements for irrigated crops, sugar beets, potatoes and vegetables)	Actually sown with fertilizers applied to rows, in thousands of hectares	Superphosphate used for row fertilization, % of available resources
Volgogradskaya	2140	454	21
Kuybyshevskaya	1740	306	18
Penzenskaya	1320	555	42
Saratovskaya	1720	220	13
Ul'yanovskaya	1278	685	54
Bashkir ASSR	2400	1900	79
Kalmyk ASSR	340	27	8
Tatar ASSR	1337	1337	100
Orenburgskaya	3520	1895	54

TABLE 5

Liming of Soils During 1976-1979 Period, in thousands of hectares

Oblasts and Autonomous Republics	Plan	Actual	% of Fulfillment
Penzenskaya	87	72	82
Ul'yanovskaya	50	16	32
Bashkir ASSR	569	357	62
Tatar ASSR	846	365	43

preceeding years taken together. The area of irrigated land presently exceeds 1.3 million hectares. This is 27 percent of the overall amount of such land in the Russian Federation. Occupying only 3 percent of the overall area of agricultural lands, the irrigated land supplies the region with up to 86 percent of its vegetables, 40 percent of the perennial grass hay, 54 percent of the perennial grass fodder and also large quantities of other agricultural products. During the past few years, the cropping power of agricultural crops on irrigated lands has increased somewhat throughout the economic region as a whole. However, owing to shortcomings in the agricultural practices, this cropping power on irrigated lands has fluctuated considerably, especially in the case of grain crops. For example, in 1976 34.8 quintals of grain were obtained per hectare of sowing in Volgogradskaya Oblast, in 1978 -- 32.6, in 1975 -- 20 and in 1979 (according to preliminary data) -- 22.3 quintals per hectare. Meanwhile, the Meliorator Sovkhoz in this same oblast obtained 47 quintals of grain in 1978 and last year -- 46.5 quintals per hectare. This testifies to the availability of large reserves on the irrigated lands.

Rice growing has undergone considerable development in the Volga region. In terms of its rice production volumes, Astrakhanskaya Oblast occupies second place in the Russian Federation. Fine prospects exist for the development of this branch in the Kalmyk ASSR. For example, rice production in the Sarpinskaya Lowland must be increased to 250,000 tons and feed to 300,000 tons of feed units by 1990.

Last year, a brigade leader at the Novaya Zhizn' Kolkhoz in Kharabalinskiy Rayon in Astrakhanskaya Oblast, recipient of the State Prize of the USSR A.M. Gurnov, obtained 69.5 quintals from each of 450 hectares. During 4 years of the five-year plan, the brigade's average cropping power for its rice was 60.7 quintals per hectare.

Despite the achievements that have been realized, it would be wrong to overlook the fact that the cropping power of rice at kolkhozes in Astrakhanskaya Oblast and the Kalmyk ASSR has on the whole decreased compared to the Ninth Five-Year Plan. The tasks for the production and procurement of rice are not being fulfilled. The farm leaders and specialists must draw the proper conclusions from this fact.

Under irrigation conditions, soybeans are a valuable protein crop. Its plantings occupy approximately 7,000 hectares in the Volga region. This is an extremely small amount of land. The interests of the work require a more decisive increase in soybean plantings on irrigated lands.

Fine experience can be found in the region with regard to the growing of vegetables. For example, the Volgo-Don Sovkhoz in Volgogradskaya Oblast annually obtains 550-600 quintals per hectare in a consistent manner. But by no means can all of the farms report such indicators. As a result, the rates of growth for vegetable production are not keeping pace with the requirements (see Table 6).

Irrigation farming continues to make a great contribution towards the creation of a feed base for animal husbandry. The Sovkhoz imeni Radishchev in Saratovskaya Oblast, for example, obtained 500-700 quintals of grass fodder last year from each of more than 1,000 hectares and the Volzhskiy Sovkhoz -- 860 quintals per hectare. The farms in Astrakhanskaya Oblast obtained an average of 63 quintals of hay from each hectare and in Volgogradskaya Oblast -- 55 quintals per hectare. Unfortunately, the perennial grass yields for the zone as a whole were very low. This applies first of all to the Bashkir ASSR and to Penzenskaya and Ul'yanovskaya oblasts.

Greater quantities of feed corn can be grown under irrigation conditions. This is borne out by the experience of leading farms. Last year the Meliorator Sovkhoz in Volgogradskaya Oblast obtained 448 quintals of corn fodder from each of 815 hectares and the Rossiya Kolkhoz in Pugachevskiy Rayon in Saratovskaya Oblast -- 425 quintals per hectare.

Serious shortcomings prevail with regard to the creation of a firm feed base for the complexes. Of 247 animal husbandry complexes in operation throughout the Volga region, 44 percent lack a reliable feed base. This is the result of a poor selection of the complex sites and lack of coordination of the construction plans for the animal husbandry facilities and the land reclamation projects. The most unfavorable situation in this regard developed in Kuybyshevskaya Oblast and in the Bashkir ASSR.

The absence of a proper return from irrigated lands is explained to a considerable degree by low quality planning and construction of the systems. There have been frequent instances of systems marked by serious imperfections being accepted for operations by the farm leaders and agricultural organs. Such acceptance has taken place with no inspections or testing being carried out in advance under production conditions. As a result, considerable areas of irrigated land were subsequently rejected for use.

The agricultural organs are under an obligation to raise exactingness with regard to the quality of construction of irrigation systems. No longer should systems be built on the basis of obsolete plans, nor should such construction required large expenditures of manual labor.

The agricultural mastering of irrigation systems that are under construction must be ensured.

The task is one of raising the effectiveness of irrigated lands to the maximum possible degree. There must be a permanent overseer for each irrigated hectare of land. Wages must be paid out based directly upon the quantity and quality of the products obtained.

Under conditions of intensification, a variety and its seed serve as an effective means for raising the production of farming products. Work associated with the accelerated introduction into production operations of new varieties has been organized very well on farms in the Bashkir ASSR. Here the reproduction of a variety is being carried out parallel with its evaluation by plant breeders and state inspection at state strain testing stations. As a result, the plantings of new varieties occupy almost 2 million hectares and their proportion is 63 percent.

In Volgogradskaya and Orenburgskaya oblasts, strain changing has been carried out on an area of approximately 3 million hectares and the proportions for the new varieties amount to 75 and 65 percent respectively.

But by no means is this the case in all areas. In Ul'yanovskaya Oblast, the proportion of new varieties in grain crop plantings was 36 percent in 1979 and in Penzenskaya Oblast -- only 15 percent.

The results of state strain testing have shown that many new varieties surpass earlier regionalized ones by 20 percent and more in terms of their cropping power. Thus, at strain testing stations in Penzenskaya Oblast, Saratovskaya 4 winter rye furnished 2.2 more quintals per hectare than did the Saratovskaya coarse grain variety and Nutans 244 spring barley furnished 7.4 more quintals per hectare than did Kazanskiy 6/4. At the same time and owing to the fact that insufficient attention was given to the propagation of new varieties, Saratovskaya 4 winter rye, following 6 years of regionalization, occupies only 13,000 hectares throughout the oblast, or eight percent of the areas planned. Following 3 years of regionalization, Nutans 244 barley is being grown on 80,000 hectares, or 25 percent of the plan.

A substantial shortcoming in seed production lies in the fact that the farms do not have sufficient quantities of their own seed for the different agricultural crops. As a result, they must borrow the seed from the state resources. During the past 4 years alone, the kolkhozes and sovkhozes in Astrakhanskaya Oblast, in the form of loans and sales, obtained approximately 60,000 tons of grain crop seed (less corn), or 43 percent of their requirements. Each year the farms in the Kalmyk ASSR obtain an average of 24,400 tons from the state resources. In Saratovskaya Oblast, 10 percent of the grain crop seed sown is obtained from the state fund and in the Tatar ASSR -- 9 percent.

A considerable amount of work remains to be carried out in connection with raising the quality of the seed being sown.

Concerning a seed production base in the region. Of 93 seed cleaning points scheduled to be placed in operation during the 1977-1979 period, only 21 actually entered operations, including 19 last year. The situation is particularly bad in the Bashkir ASSR, where during the past 3 years only three projects have been placed in operation instead of the 18 called for in the plan. The plans for Volgogradskaya Oblast called for 10 complex points to be placed in operation during these years and yet only one entered operations. The farms in Astrakhanskaya and Orenburgskaya oblasts and in the Kalmyk ASSR have not commenced their construction of points and the construction of plants for the processing and storage of sunflower seed is unfolding in a very weak manner.

The rates of construction for grass seed production stations are low. For example, there are only 17 such stations in the Volga region of the 26 planned. In particular, construction work in Penzenskaya Oblast is proceeding very slowly. Last year, of 300,000 rubles allocated for construction-installation work here, only 11,000 rubles were utilized by organizations of Minsel'stroy [Ministry of Rural Construction].

An important factor for the successful mastering of crop rotation plans and the preservation of soil fertility is that of correctly organized grass cultivation, especially perennial grasses. Each year there is a shortage of

TABLE 6

Average Annual Production of Vegetables, thousands of tons

Oblasts and Autonomous Republics	1961-1965	1976-1979	% of Growth
Astrakhanskaya	149	144	97
Volgogradskaya	212	135	64
Kuybyshevskaya	153	109	71
Penzenskaya	101	93	92
Saratovskaya	168	124	74
Ul'yanovskaya	74	97	131
Bashkir ASSR	154	126	82
Kalmyk ASSR	8	149	18.6
Tatar ASSR	125	101	81
Orenburgskaya	111	107	96

seed. The time is at hand for examining thoroughly the work of those farms which are specializing in seed production. Can we really tolerate a situation wherein, in Astrakhanskaya, Penzenskaya and Orenburgskaya oblasts, the proportion of seed plants for grasses to be grown on arable land does not exceed 2-5 percent? The seed plants are mainly grown on commodity planting areas, which are not kept up until the harvest and this leads to a shortfall in seed. A formal approach towards specialization in seed production for grasses and the absence of cleaning stations leads to a situation wherein many kolkhozes and sovkhozes in the Volga region and in Orenburgskaya Oblast sow non-graded seed. For example, in Penzenskaya Oblast their proportion is 80 percent, in the Bashkir ASSR -- 59 and in Kuybyshevskaya Oblast -- 53 percent.

The problem of seed production for grasses must be solved in each oblast and autonomous republic. The importing of seed is always difficult and, as experience has shown, does not always produce the desired effect.

In discussing the problem of farming stability and the grain economy in particular, I wish to focus attention on the need for increasing the production of winter grains, which even during extremely dry years furnish higher yields. The winter crop fields must be expanded.

Buckwheat and millet are deserving of special attention. Not one oblast or autonomous republic in the region has fulfilled its plan for 4 years of the five-year plan, with regard to the production and procurements of these valuable groat crops. In this regard, considerable interest is being displayed in the experience of farms in Aznakayevskiy Rayon of the Tatar ASSR, where a considerable increase was achieved in the production of buckwheat owing to an expansion of the area under crops, the introduction of a progressive technology and improvements in the organization of and payments for labor. During the years of the Tenth Five-Year Plan, 23,000 tons of buckwheat were sold to the state, instead of the 14,000 tons called for in the plan. This amounted to 25 percent of all buckwheat procured in the Tatar ASSR.

Fine indicators for the production of millet were obtained in Krasnokutskiy Rayon in Saratovskaya Oblast. During the past 4 years, 79,000 tons were sold to the state against a plan calling for 22,500 tons.

This valuable experience must be disseminated to all areas.

Strong improvements are required in the work directed towards increasing the production of beets and especially sunflowers in Penzenskaya and Saratovskaya oblasts (see Table 7).

TABLE 7

Average Annual Production of Sunflowers, thousands of tons

Oblasts and Autonomous Republics	1961-1965	1976-1979	% of Growth
Volgogradskaya	139	191	137
Kuybyshevskaya	116	155	133
Penzenskaya	33	25	76
Saratovskaya	222	203	94
Ul'yanovskaya	39	55	141
Bashkir ASSR	35	64	183
Kalmyk ASSR	5	10	200
Orenburgskaya	77	83	107

The Volga and southern Urals regions are traditional zones for the growing of good quality wheat. The local grain has earned worldwide fame. But recently the quality of the grain here has deteriorated noticeably. In particular, the situation is not very good with regard to the procurement plans for durum wheats.

Overall, during 4 years of the five-year plan, the kolkhozes and sovkhozes in Kuybyshevskaya and Saratovskaya oblasts failed to fulfill their plan for the sale of strong wheat. The procurement plan for durum wheat was fulfilled only by the farms in the Bashkir ASSR. The task must be solved in a manner such that all of the commodity wheat produced in the region conforms to the highest quality conditions. The task is one of finding agrotechnical solutions which will ensure an increase in the gluten content in the grain and an improvement in its quality.

Further improvements in animal husbandry are unthinkable if a stable feed base is not created or if improvements are not realized in material-technical support. Special reliance must be made upon achieving considerable increases in the production of hay, haylage, silage and other high quality feeds.

In conclusion, permit me to state with confidence that the fruitful work of the conference will be of great assistance in successfully carrying out those tasks which are presently confronting the farmers and livestock breeders in the Volga region and Orenburgskaya Oblast, with regard to increasing the production of goods, raising the efficiency and stability of agriculture and successfully carrying out the obligations undertaken in behalf of the state.

This year we celebrate the 110th anniversary of V.I. Lenin's birth. During a speech delivered before the November (1979) Plenum of the CPSU Central Committee, Leonid Il'ich Brezhnev noted that one of the most important tasks is that of transforming the year 1980 into a year of shock work, of work performed in the Leninist manner. The agricultural organs, kolkhozes, sovkhozes and all rural workers must be motivated in this direction and this will enable them to achieve new and considerable successes in agricultural development and in successfully implementing the decisions handed down during the 25th CPSU Congress.

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MAJOR CROP PROGRESS AND WEATHER REPORTING

SPRING SOIL CONDITIONS IN NOVOSIBIRSKAYA OBLAST

Moscow IZVESTIYA in Russian 25 May 80 p 1

[Article by A. Illarionov, Novosibirskaya Oblast: "First and Foremost -- Quality"]

[Text] The spring period is rather unusual this year in southwestern Siberia. There was very little snow and it evaporated just as quickly as it thawed out. The early April thunderstorms produced more noise than moisture for the ground. Nor has there been an abundant amount of rainfall during May. Thus it comes as no surprise to see the sowing machines raising clouds of dust.

The director of the Order of Lenin Berdskiy Sovkhoz, I. Leunov, put a call through to the weather forecasters.

"Even if it amounts to only 14 millimeters of precipitation" he stated, "but they did not even promise this amount."

During the past few years, there have not been any significant differences among the grain growers with regard to the sowing periods. The best period is the third decade in May. This year the supply of moisture in the soil is worth its weight in gold and perhaps work could have been started earlier.

"We waited until the wild oats made their appearance" stated Ivan Ivanovich, "although we have very little, nevertheless the wild oats must be controlled."

No sooner did the long-awaited wild oats make their appearance, than the tractors together with cultivators and harrows were moved out onto the fields. They were followed almost immediately by the sowing units. The machine operators performed at a fine tempo. Simultaneous with the sowing of the grain crops, the potatoes were planted and the soil was prepared for silage corn.

In the southern part of the oblast, I followed a field road until it brought me to the chairman of the Siberian Branch of VASKhNIL [All-Union

Academy of Agricultural Sciences imeni V.I. Lenin], Academician P. Goncharov. A field crop grower, he has worked for many years on the fields of Siberia and he is unable to sit still in an office after the sowing campaign has commenced.

We decided to visit the Cherepanovo Experimental-Production Farm, which is well known for the fine manner in which its operations are organized and also for its productive use of equipment. Finally the fields are before us. A 'K-701' passes on our side; it is towing five sowing units and a red flag is flying from its cabin. This is the crew of machine operator F. Levashov, which sowed 270 hectares in just 1 day against a norm calling for only 80.

Certainly, the concept of a "working day" is a rather arbitrary one for F. Levashov with regard to sowing operations. He works according to the principle: if there is no rain, work from sunrise to sunset. And all of the conditions have been created for him to do this: three hot meals each day, timely filling of the sowing units with grain and fertilizers, efficient technical servicing. All of these factors made it possible for Levashov to establish a unique record for the oblast. Reports are being received concerning high output levels by other farms and other rayons.

The work schedules are very important. But the dry spring conditions pose a special requirement with regard to selecting the agricultural practice to be employed. First of all, the moisture must be retained in the soil. We go out onto a field. Here the gusts of wind are stronger. But they are not raising up clouds of dust: the soil was thoroughly rolled.

"The cultivators and harrows are followed immediately by the sowing machines and rollers, practically without interruption" stated the director of the farm, V. Sablin, "this helps to reduce evaporation."

We carefully move aside the upper layer of soil. There lies the grain. It lies on a damp bed. The proper conditions are available for the seedlings.

On this same day we also encountered fields which were not so well prepared or sown. On some farms the harrowing work has been delayed and problems are being encountered. Nevertheless, this is an exception to the general rule. The overwhelming majority of the kolkhozes and sovkhozes in Cherepanovskiy Rayon, in terms of the agricultural practices being employed, are raising themselves to the level of the experimental-production farm. The grain growers are striving to complete their grain sowing operations as quickly as possible.

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MAJOR CROP PROGRESS AND WEATHER REPORTING

GRAIN SOWING OPERATIONS COMMENCE IN NORTHERN KAZAKHSTAN

Moscow PRAVDA in Russian 21 May 80 p 1

[Article by V. Vorob'yev and Ye. Zaytsev, northern Kazakhstan: "With Virgin Land Scope"]

> [Excerpt] Sowing operations have commenced in the virgin lands of Kazakhstan. Grain seed must be sown in a rapid and high quality manner on almost 14 million hectares, by the grain growers in Kustanayskaya, Tselinogradskaya, Kokchetavskaya, Turgayskaya and Severo-Kazakhstanskaya oblasts. Last year a record harvest was obtained in Kazakhstan. This year the virgin land workers have again planned high goals for themselves. They have resolved to furnish more than 10 million tons of grain.

"Very fast rates and high quality work are typical features of this present spring season" noted the 1st Secretary of the Tselinogradskaya Oblast Committee of the Communist Party of Kazakhstan, N. Morozov, "party and party-komsomol groups have been created in all of the sowing complexes operating throughout the oblast. They have become the nucleus for rallying the collective to carry out its work in an efficient manner. Of 2.8 million hectares sown in grain crops, 2.3 million hectares are occupied by wheat.

Many of the sowing complexes immediately achieved maximum outputs. This was the result of efficient preparations for the spring campaign. The equipment was prepared better than previously has been the case. Many machine operators improved their skill classifications during the winter. The experience of leading brigades was disseminated extensively. This included the brigades headed by Mikhail Dovzhik, Nurgabul Malgazhdarov, Stanislav Gavrilyuk, Vladimir Dityuk and Vasiliy Akulenko, all of whom obtain high yields each year. Ninety two percent of the seed is of first or second class quality -- higher than last year. Last year the oblast obtained an average of almost 17 quintals of grain. This year the farms are striving to surpass this level.

The sowing operations in other oblasts of northern Kazakhstan are also being carried out at a high tempo. For example, the majority of the units in Kokchetavskaya Oblast are being operated on a double shift basis.

In Turgay, where there is an acute shortage of machine operators, the experience of the brigade headed by V. Butym, of the Turgay Sovkhoz-Technical School, has been disseminated extensively. For several years now, this brigade has used only Kirovets machines and highly productive towing equipment. This year, hundreds of such complexes will be used for carrying out the sowing work on the oblast's fields.

The non-schedule system of wages for machine operators, which serves to raise interest in the final results of labor, is being introduced into operations in Kustanayskaya Oblast on an extensive scale. For example, on the eve of the sowing campaign the Uritskiy Rayon Party Committee discussed the work of V. Yermakov's team at the Sovkhoz imeni Chekhov, which employs the new system. Last year, a group of five machine operators raised grain on almost 3,000 hectares. An average of 26 quintals of grain per hectare was obtained. At the present time, the team is competing to obtain no less than 30 quintals of grain from each hectare of planting. Others are now following the examples set by leading workers. In Uritskiy Rayon alone, brigades at the Sevastopol'skiy, Barvinovskiy, Mayak and imeni XXV S"yezda Partii sovkhozes have converted over to this progressive wage system.

The sowing rates in a majority of the rayons in northern Kazakhstan are higher than last year's rates. However, incidents of equipment lying idle and other operational problems are still occurring. For example, a number of machines broke down in Kurgal'dzhinskiy Rayon, Tselinogradskaya Oblast, as a result of low quality repair work. Fourteen tractors in Enbekshil'derskiy Rayon, Kokchetavskaya Oblast were unable to participate in operations owing to a shortage of spare parts. Only rarely do domestic services workers make an appearance at the field camps of a number of virgin land farms. Nor are all of these camps equipped with showers; at times the machine operators have no facilities at their disposal where they can wash themselves at the end of a working day. The party committees and the soviet and economic organs must do everything possible to ensure that the necessary conditions are created for the virgin land workers.

Northern Kazakhstan is the country's largest producer of high quality grain. Each year it produces 80 or more percent of the all-union procurements of strong wheat. During the final year of the five-year plan, the virgin land workers are striving to achieve new goals and to supply the granaries of the homeland with greater quantities of high quality grain.

7026
CSO: 1824

CROP DAMAGE CAUSED BY BAD WEATHER IN ARMENIA

Yerevan KOMMUNIST in Russian 26 Apr 80 p 2

/Article/

/Excerpts/ On the republic's kolkhozes and state farms, despite unfavorable weather conditions, the sowing campaign has gained in scope in the last few days. According to operative data on 25 April, 71,562 hectares have been sown, which comprises 41.7 percent of the planned assignment. One-half of this area has been sown only in the last 5 days. The sowing of grain crops has been carried out on 36,000 hectares and of annual grass and silage crops, on 20,000 hectares, the pure sowing of perennial grass, on 3,600 hectares and the sowing of corn for silage, on 860 hectares and of fodder root crops, on 550 hectares.

Of the envisaged 10,440 hectares potatoes have been planted on 6,000 hectares, including early ripening potatoes, on 1,446 hectares.

Vegetable growers have also gone out to the field. Tomato, cabbage, onion, cucumber and other crop seedlings have already been sown and transplanted on more than 2,000 hectares.

The sowing of sugar beets has begun. The first hundreds of hectares have been sown in Akhuryanskiy Rayon.

Despite the work done, as noted in the headquarters, the present rates of the sowing campaign in individual places, especially in the north-eastern and Zangezur zones and plain regions, are not satisfactory.

The sudden snowfall and the abrupt drop in temperature in April have created certain difficulties. To restore the damaged sown areas, the necessary measures are being taken everywhere. Topdressing and harrowing have been carried out on 13,600 hectares of winter areas sown with grain crops and perennial grass. Resowing is being done on the damaged areas sown with grain and fodder crops.

The sowing campaign in the republic is 15 to 20 days late as compared with last year's campaign, which can have a negative effect on the yield. Ensuring a rich and high-quality harvest demands that the sowing campaign gain in scope everywhere so that it may be completed in the shortest agrotechnical period with resowing done on all the damaged areas.

The task of party, Soviet and agricultural local bodies is to pay serious attention to a prompt and correct performance of a set of operations for the application of fertilizers, irrigation and chemical weed control, mobilizing the efforts of all field workers and machine operators, equipment and physical facilities for this work.

The sowing of vegetable and melon crops must be carried out without fail according to the established assortment, which is considered an important criterion during an evaluation of the final results of work. This stems from the need to meet the growing needs of the processing industry and the population.

The cold weather and snow that arrived unexpectedly during the second 10-day period in April have also created many difficulties for the republic's gardeners. Owing to the low temperature the opened eyelets on the grapevine and the already developed sprouts and racemes froze, which will lead to a significant harvest loss. In order to reduce the damage from frost to a minimum and to obtain a rich harvest within the limits of the possibility, extraordinary measures should be taken everywhere. Scientists, specialists and party and Soviet workers have gone to rayons to help gardeners and physical facilities and equipment have been mobilized to improve the cultivation of plants. Extensive work has been done on topdressing and soil irrigation in gardens. The implementation of this set of operations in a short period and in a quality manner has now become an urgent demand of the time.

On the republic's farms right now it is necessary to take extraordinary measures with a view to being fully ready for the important campaign of treating gardens. It is necessary to prepare equipment and to acquire a sufficient number of treating facilities.

Everything that is possible should be done to preserve the future harvest.

11,439
CSO: 1824

MAJOR CROP PROGRESS AND WEATHER REPORTING

CORN CROP PRODUCTION PROBLEMS IN ROSTOVSKAYA OBLAST

Moscow SOVETSKAYA ROSSIYA in Russian 21 May 80 p 1

[Article by V. Zanozin, Rostovskaya Oblast: "For Improved Ears of Corn"]

[Excerpts] As is generally the case in the Don River region, the difficulties encountered during the past livestock wintering period in Yegorlykskiy Rayon were associated with a considerable shortfall in feed last year. Corn satisfied the grain and silage requirements by a bare 50 percent. But some kolkhozes and sovkhozes endured the wintering period in a satisfactory manner: they had laid away ample quantities of forage.

"The differences in the cropping power of the forage crops" commented the 1st secretary of the rayon party committee, N.N. Golovko, "resulted from the fact that the farmers themselves "assisted" the drought conditions by virtue of their lack of organization, their violations of the agricultural practices and their low field culture. We analyzed the blunders very thoroughly and today we are conducting the competition under the slogan "Badge of quality for the products of the fields and farms."

This year, for the very first time, the grain corn in Yegorlykskiy Rayon will be grown in accordance with an industrial technology.

Today there are many concerns out on the fields. Indeed, in addition to growing corn in accordance with an industrial method, ears will be grown for grain on 2,400 hectares, with corn fodder from 9,000 hectares being placed in silage trenches. High obligations have been undertaken in Yegorlykskiy Rayon. The decision has been made to obtain 35 quintals of corn grain per hectare and on "industrial tracts" -- 50 quintals per hectare, and fodder -- 250 quintals per hectare.

Strict observance of the entire complex of agricultural practices associated with the growing of corn is viewed as law in Myasnikovskiy Rayon. Here a great amount of attention is being given to organizing the labor of people and improving material stimulation and moral incentives. A number of awards have been instituted for the winners of competitions: prizes, the title of "best corn grower," diplomas, Book of Honor and the recently established badges of quality for plowing.

The Don region machine operators are fully resolved to obtain an outstanding harvest this year. But the fact of the matter is that all too often the necessary equipment is lacking. The teams do not have an adequate number of special disk harrows, cultivators, water distributors or sprayers.

Nor is all going well with regard to personnel. It would appear that the overall picture is not alarming: the plans called for approximately 3,200 individuals to undergo agronomic training at kolkhozes and sovkhozes and more than 4,500 machine operators were trained. Such rayons as Dubovskiy, Krasnosulinskiy, Yegorlykskiy and others exceeded their planned goals by 3-4 times. But Tsimlyanskiy, Zavetinskiy and Tarasovskiy rayons fulfilled their tasks by only 50 percent.

According to the specialists, corn in the Don River region was a "success" only during the year before last. At that time, an average of 30.1 quintals of grain per hectare was obtained. But there is nothing to rejoice over here: very little was harvested for grain -- 77,000 hectares, and the cropping power on many farms was low.

This year the golden ears will be cultivated on 200,000 hectares in Rostovskaya Oblast by 1,500 teams. Time is very dear at the present time, since spring was late and it is still not being used in a thrifty manner: by the end of the second decade in May, the corn had been planted on only one half of the planned areas. The corn growers in Kasharskiy, Oblivskiy, Sal'skiy and other rayons have clearly fallen behind in their work. Meanwhile, up until recently the sowing of this crop in accordance with the industrial technology had not yet commenced in Ust'-Donetskiy, Aksayskiy and Bokovskiy rayons.

The Don region corn growers are under an obligation to intensify their work tempo, raise the quality of their sowing work and constantly increase their army of golden ear specialists, who this year resolved to obtain the highest harvest for the five-year plan.

7026
CSO: 1824

MAJOR CROP PROGRESS AND WEATHER REPORTING

CORN PRODUCTION IMPROVEMENTS REQUIRED IN ROSTOVSKAYA OBLAST

Moscow SEL'SKAYA ZHIZN' in Russian 18 May 80 p 1

[Article by Yu. Maksimenko, Rostovskaya Oblast: "For Improved Ears of Corn"]

> [Excerpts] The farmers in the Don River region plan to produce 1 million tons of corn this year. This valuable crop will be sown on 765,000 hectares throughout the oblast. For the very first time, corn will be grown on large areas using the industrial technology.

The steady rainfall during the month of May has generously watered the arable land of the kolkhozes and sovkhozes in the Don region. Scarcely had the land dried out than the machine operators moved their row units out onto the fields. The field work has entered a new and important stage -- the planting of corn, sorghum, sunflowers, soybeans and fodder beets has commenced and fields that were planted earlier are now being tended.

"There is a good supply of moisture and it will be a fine corn year" such was the opinion expressed by the farm leaders, agronomists and machine operators with whom we met. At many kolkhozes and sovkhozes, these forecasts were based upon a great amount of work that had been carried out in connection with making preparations for sowing the corn, which in combination with valuable protein crops, will be a leading factor in the creation of a full-value feed base for animal husbandry. The initial tens of thousands of hectares of grain corn have been sown. In all, it will be sown on 765,000 hectares throughout the oblast, with the industrial method being employed on a portion of this area.

Zernogradskiy Rayon is one of the largest producers of corn. As a result of a complex of organizational and agrotechnical measures being employed -- plantings following the best predecessor crops, use of highly productive regionalized hybrids and raised dosages of fertilizers, herbicide applications and timely harvest operations -- the corn yields are steadily increasing.

"For several years now, we have been employing industrial methods in the growing of our row crops" stated the 1st secretary of the Zernogradskiy

Rayon Party Committee and Hero of Socialist Labor, I.S. Nazarov, "the extensive application of the Moldavian experience will enable our corn growers to achieve even better results. This year the industrial method will be employed on 5,500 hectares. This new work is receiving wide support.

On plantations where the Moldavian experience is being followed, the proper technology is being used in a very strict manner. The agronomic service of the kolkhoz is exercising strict control over the entire cycle of field work and it is monitoring the efficiency, quality and schedules for carrying out this work and especially the correct placement and mixing of the herbicide liquid with the earth. The seed is being placed in soil that is well cultivated, fertilized and treated with a preparation.

The planting of row crops is being carried out in an organized manner by mechanized detachments and teams on all farms in Zernogradskiy, Sal'skiy, Azovskiy, Neklinovskiy and Tselinskiy rayons. And the industrial method was employed in these rayons on considerable areas. On many farms, plans are consistently being carried out in connection with tending the crops, preparing for the harvest operations and building covered thrashing floors and sheds and corn dryers; all of these measures will make it possible to protect the ears and grain against losses.

Nevertheless, it must be admitted that not all of the farms have received the machines, implements and fertilizers planned for the introduction of the new technology. Nor has the organization of the mechanized teams been well thought out in all areas.

The corn yields in the Don River region are increasing. But the difference between the average oblast indicator and the results of leading farms is very great. The yields being obtained by the best teams and farms are two times higher and under irrigation conditions the experts are obtaining 100 and more quintals of corn grain per hectare. In pursuit of their goal of producing 1 million tons of corn grain, the farmers are persistently mastering leading experience and the new technology for obtaining high and stable yields. It is in this regard that they require more active assistance and support on the part of the specialists, scientists and agricultural organs.

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CSO: 1824

MAJOR CROP PROGRESS AND WEATHER REPORTING

BRIEFS

SNOWSTORM IN ARMENIA--This spring the weather in Armenia is capricious as never before. Heavy snow fell unexpectedly in the republic in April. The thickness of its cover exceeded 20 cm here and there. Such a thing has not been observed in the last 100 years. The heavy snowfall did damage to the fields turning green, vineyards and peach and apricot trees. The element destroyed certain mountainous departments. Perennial grass and grain crops were under snow. It seemed that the weather calmed down. But a big hail fell in Abovyanskiy Rayon a few days ago and it did not melt for 3 hours. The republic's workers are taking every measure to save the future harvest. Urgent agrotechnical measures are being completed on Armenia's kolkhozes and sovkhozes. Perennial grass is being resown with annual and silage crops. In vineyards vines are being cut repeatedly and topdressed so that additional buds may be opened. Livestock barns have been fully restored. Urgent assistance with fodder is given to the farms that suffered from the snowfall. /Text/ /Moscow TRUD in Russian 22 May 80 p 4/ 11,439

SOWING CAMPAIGN IN GEORGIA--The sowing campaign is gathering strength in the republic. On 31 March the spring wedge has already occupied 55,882 hectares--approximately one-sixth of the entire sown area. A total of 6,868 hectares of grain and pulse crops (without corn), 4,626 hectares of sunflowers for grain, 9,719 hectares of vegetables, 20,418 hectares of annual grass and 1,223 hectares of fodder root and fodder melon crops have been sown. The rates of work are not high--the whims of this spring are reflected in this. The maximum organization and a highly productive utilization of equipment will help farmers to complete the sowing on the agricultural dates set. A specific goal--to consolidate and surpass last year's results--is set for every kolkhoz member, sovkhoz worker and specialist. Tasks of great importance are set for our grain production. Despite the fact that the republic overfulfills grain procurement plans every year, the underfulfillment of grain production plans has become systematic. This is reflected not only in the economy of farms, but also in the provision of livestock breeding with high-grade fodder. We do not have the possibility to expand the areas under grain crops and to increase gross output on this basis. Moreover, a tendency toward an annual reduction in their areas as a result of an expansion of the establishments of perennial plantings has been observed. That is why the problem of increasing the yield of grain crops requires the most serious attention. /Excerpts/ /Tbilisi ZARYA VOSTOKA in Russian 8 Apr 80 p 1/ 11,439

SPRING FIELD WORK--Astrakhanskiy Rayon, Tselinogradskaya Oblast. Spring is warm now, and all the weeds have come up. An an experiment, on clear areas we ran SZS-2.1 seeders with teeth over the stubble background which had been untouched since fall. We were convinced that such minimalization of preparations has a very favorable effect on the yield. We are cultivating the remaining fields selectively with KPK-3.8 and KPSh-9 cultivators. [Excerpts] [Alma-Ata KAZAKHSTANSKAYA PRAVDA in Russian 24 May 80 p 1] 7990

RICE CROP--Bakanas, Alma-Atinskaya Oblast. The field-crop growers in Balkhashskiy Rayon have completed the rice planting on an area of 10,350 hectares. The check plots have already been flooded on more than 9,000 hectares of plantings. Shoots have already turned green on the check plots planted first on the Bakhbakhtinskiy and Akdalinskiy sovkhozes. The teams have started to care for the plantings. [Text] [Alma-Ata KAZAKHSTANSKAYA PRAVDA in Russian 24 May 80 p 1] 7990

DRAINAGE PROBLEMS--Kyzl-Ordinskaya Oblast. All seven field work brigades of the Sovkhoz imeni Il'ich are planting rice. The pace is far above that of last year. More than two thirds of the planned 3,100 hectares have been planted. The Sovkhoz imeni Il'ich belongs to the Trust of the Kzyl-Orda Construction-Production Association of Glavrissovkhozstroy [expansion not available]. The land, the irrigation system, and hydraulic engineering equipment here were prepared for spring on time. Therefore, the farm workers are convinced that they can attain the planned goals. The farming season is also in full swing on the trust's other sovkhozes. They face the task of planting 24,460 hectares. Agricultural workers are currently obligated to harvest 48 to 50 quintals of unhulled rice per hectare compared to a planned total of 43 quintals. However, matters are not proceeding at a normal pace on all the rice crop rotation areas. A large part of the more than 40,000 hectares which require engineering support has become boggy and salinized and is yielding poor harvests. More than ten vertical drains were built some time ago to conserve the fertility of the land included in the plan. Unfortunately, more than one year has elapsed since their completion and these structures have yet to begin to function. One would think that the Kzyl-Orda Trust of the Construction-

Production Association sovkhozes of Glavrissovkhozstroy would take measures to utilize the completed drainage system. [Excerpts] Alma-Ata KAZAKHSTANSKAYA PRAVDA in Russian 24 May 80 p 1] 7990

FLOODED FIELDS--Kokchetavskaya Oblast. Currently they are having a difficult spring in Kellerovskiy Rayon. The fields are literally flooded. About 7,000 hectares designated for spring crops are under water. The excess moisture has necessitated detours around low places during the sowing. This explains the slow pace and low quality of the sowing. But work is proceeding strictly according to schedule on the majority of the farms; they are holding to optimum sowing periods. The rayon had completed planting potatoes and sowing sunflowers and perennial grasses for silage by 15 May. This made it possible to proceed on time to the mass sowing of wheat. Kellerovskiy Rayon has set a good pace for the spring work. Wheat has been sown on over half the areas designated. It must not be said that everything is going smoothly for the Kellerovskiy people. Violations of agricultural practices have occurred on the Zarya Kolkhoz. But such cases are rare in the rayon. The grain growers have pledged to complete the sowing of wheat by 25 May. They are holding to their pledge. [Excerpts] [Alma-Ata KAZAKHSTANSKAYA PRAVDA in Russian 24 May 80 p 1] 7990

RAINS IN KAZAKHSTAN-- Karagandinskaya Oblast. The Osakarovka grain field occupies a special place in central Kazakhstan. Good harvests are consistently obtained here. For example, last year many sovkhozes attained a level of 20 quintals and the rayon average was over 17 quintals per hectare. The grain growers met their five-year plan ahead of schedule. This year the agricultural workers have resolved not to yield the positions they have won. The favorable spring rains have inspired confidence in success. But at the same time the weather has forced the work to be done under greater pressure than usual. It has become necessary to work the soil in a very short time period so as not to miss the best period for the sowing. The machine operators, organized into complex detachments, are successfully completing this work. The rayon grain growers have now pledged to deliver no less than 100,000 tons of grain to the state. This is already on the record for the future five-year plan. [Excerpts] [Alma-Ata KAZAKHSTANSKAYA PRAVDA in Russian 23 May 80 p 1] 7990

GRAIN SOWING--Pavlodarskaya Oblast. The extensive sowing of grains is in full swing in the southern rayons of Pavlodarskaya Oblast. Well moistened soil offers the agricultural workers the hope of a good harvest. [Excerpt] [Alma-Ata KAZAKHSTANSKAYA PRAVDA in Russian 21 May 80 p 1] 7990

QUALITY SEEDS--Karaganda. Grain seeds have been sown on 40,000 hectares of well-prepared moist soil. Highly certified seeds are being sown in the oblast by anti-erosion seeders equiped with cultivator teeth for weed cutting. Mineral fertilizers are being applied along with the seeds on many farms. Mechanized detachments have been reinforced by powerful Kirovets tractors with five seeders each; much significance is attached to adding fertilizers to the furrows with the seeds. [Excerpt] [Alma-Ata KAZAKHSTANSKAYA PRAVDA in Russian 20 May 80 p 1] 7990

SUNFLOWER CROP--Alma-Ata. The agricultural workers in Vostochno-Kazakhstanskaya Oblast, the main zone for raising sunflowers for grain in the republic, have passed a difficult test imposed by bad weather. In a period of 80 hours they finished sowing this valuable oleaginous crop. Sowing units in the Semipalatinsk and Pavlodar areas of the Priirtysh'ye are working on the last thousands of hectares. Advancing to the northern rayons, this crop occupied more than 100,000 hectares, 4,000 more than last year. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 20 May 80 p 1] 7990

GRAIN SOWING IN KAZAKHSTAN--Machine operators began the mass sowing of grains in Eastern Kazakhstan after the warm rains. The most rapid pace of sowing is in Glubokovskiy Rayon. Wheat, the main food crop, is located on 70 percent of the plowland here at present. Workers on the Ul'binskiy Sovkhoz, initiators of socialist competition among oblast grain growers, were the first to report completion of the sowing. The sowing was completed here in seven work days. Machines operators on all farms are currently carrying on field work at the level of the leading workers. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 24 May 80 p 1] 7990

KAZAKHSTAN SOWING PROGRESS--Astrakhanskiy Rayon, Tselinogradskaya Oblast--Our rayon was the initiator of the oblast's graingrowers' competition for exemplary preparation and high-quality performance of the spring sowing. The grain area exceeds 280,000 hectares. Fifty-five technological complexes, created on the basis of brigades, are working on the farms. The rayon's graingrowers obtained last year a record yield exceeding 18 quintals of grain per hectare. This year they are trying to build on their success by laying a solid foundation for the new crop. [Excerpts] [Alma-Ata KAZAKHSTANSKAYA PRAVDA in Russian 27 May 80 p 1] [7697] Alma-Ata--Yesterday sowing of grain and leguminous crops was completed by Kazakhstan's farmers. The sowings exceed an area of 23 million hectares. Working according to the Ipatov method, machine operators on separate days sowed 1.5-1.7 million hectares of fields. [Text] [Moscow TRUD in Russian 31 May 80 p 1] 7697

GOOD SOWING PERFORMANCE--The republic's farmers sustained a big labor victory and laid a good foundation for the harvest in the last year of the five-year plan. The sowing of wheat on an area exceeding 15.4 million hectares was completed in optimal time. Basically only strong and hard varieties were sown. High-standard seeds went into the soil. On all the farms sowing proceeded in a most friendly atmosphere. Pacemaking machine operators completed one and a half to two norms to a shift. Daily production on the Kirovets tractors reached 110-140 hectares. The equipment, as a rule, was was used on a two-shift basis. Many farms completed their sowing in 5-7 workdays--the work, which was organized on the large-group method, proved its effectiveness. Among the machine operators, a competition got started with the slogans "For each field, the Seal of Quality" and "For the last year of the five-year plan, the full-weight ear of the virgin lands." The sowing of barley and other grain crops is continuing. Many farms have started on fodder procurement. [Text] [Alma-Ata KAZAKHSTANSKAYA PRAVDA in Russian 27 May 80 p 1] 7697

NEW WHEAT VARIETIES--Kokchetav--The new varieties of strong wheat--Tselinnaya-21 and Omskaya-9--will make a solid addition to the harvest. This year they are being regionalized on the oblast's farms. As shown by state tests, both varieties exceed in yield Saratovskaya-29, which is the most prevalent wheat here, by an average of 2-4 quintals of grain per hectare. The new varieties are resistant to drought, diseases and pests. Stepnoishimskaya and Ruzayevskaya experimental stations have sent large batches of Tselinnaya-21 and Omskaya-9 to the oblast's sovkhozes and kolkhozes. [Text] [Moscow GUDOK in Russian 4 Apr 80 p 1] 7697

A HIGH SOWING TEMPO--Altayskiy Kray--The Altay farmers are carrying out their field work at a high tempo. The sowing of early grain crops and the planting of sugar beets have already been completed. The mass sowing of the principal food crop -- wheat -- is in progress at the present time. This year the kray's grain crops will be sown [illegible] 4,700 hectares, with the decision having been made to obtain 16 quintals of grain from each hectare. During the busy spring season, the farmers are making extensive use of the achievements of the agronomic service and leading experience. [Excerpt] [Moscow TRUD in Russian 23 May 80 p 1] 7026

BLAGOVESHCHENSKIY RAYON FIELD WORK--The field work in Blagoveshchenskiy Rayon is being carried out by 180 mechanized teams that have been combined in 38 complexes. Spring was delayed in arriving in the Kulundinskaya Steppe this year and the moisture supplies in the soil are not very plentiful. Thus the pause between the pre-sowing tilling of a field and sowing must be reduced to a minimum. In striving to carry out their work during the best periods, the machine operators must not forget one principal factor: each operation in the field must be carried out in a high quality manner. [Text] [Moscow TRUD in Russian 23 May 80 p 1] 7026

ALTAY GRAIN SOWING OPERATIONS--From the foothills of the Altay Range to the snowy expanses of Kulunda, the farmers in Altayskiy Kray are carrying out the mass sowing of grain crops. The spring crops must be sown on an area of 4.5 million hectares on an accelerated basis. [Excerpt] [Moscow IZVESTIYA in Russian 21 May 80 p 1] 7026

PRIMORSKIY KRAY RICE PLAN--Primorskiy Kray--This year the rice growers in Primorskiy Kray have vowed to obtain no less than 30 quintals of grain from each of 44,000 hectares and to sell 86,000 tons to the state. The cold and delayed spring period has confronted the farmers with many problems and yet they are countering the caprices of nature with their diligence, expertise and progressive agroctechnical methods. In all areas the machine operators are working in two shifts. Many of them are over-fulfilling their shift tasks by one and a half times and in a high quality manner. The Primorskiy Kray rice growers are striving to complete their sowing of the principal agricultural crop during the best periods -- prior to 20 May. [Excerpts] [Moscow TRUD in Russian 13 May 80 p 1] 7026

POOR QUALITY REPAIR WORK--Omskaya Oblast--For grain growers, the start of the sowing campaign is a great event. However, it produced a number of problems for the chairman of the Zarya Kommunizma Kolkhoz in Odesskiy Rayon, A. Titov, and also for the farm's entire collective. The first alarm signal was supplied by tractor operator V. Narochniy. His powerful Kirovets succenly stopped. Subsequently, seven more tractors broke down. "The breakdowns did not occur at the same farm" stated the deputy chief of the oblast agricultural administration, A. Davydov, "moreover, they were caused by low quality repair work. There are approximately 4,000 Kirovets tractors in the oblast at the present time. The majority of the machines underwent repair work at a specialized plant of Goskomsel'khoztekhnika, which is located in Novovarshavskiy Rayon. However, a number of them broke down at the very beginning of the sowing work. Last autumn, having foreseen the requirement for carrying out a great volume of field work in the spring, the decision was made in the oblast to send the powerful tractors to the workshops in a timely manner. It would appear that the repair workers carried out their task with regard to restoring the machines. Apparently however, very little care was evidenced for the quality of the work. [Text] [Moscow PRAVDA in Russian 23 May 80 p 1] 7026

EARLY GRAIN SOWINGS COMPLETED--Volgogradskaya Oblast--The Volgograd farmers have successfully completed their spring sowing of early grain crops. This year the oblast's farmers have vowed to obtain no less than 20 quintals of grain per hectare. Leninskiy Rayon is located in the Zavolzh'ye region. Here the sowing of early grain crops usually commences later than in the southern zone. But this year the agricultural workers in the Zavolzh'ye region completed it almost simultaneously with the farms in the southern rayons. At the present time, the sowing of corn, millet and fodder grasses is being carried out at a rapid tempo. The warm weather which followed the frosts is favoring this situation. [Excerpt] [Moscow TRUD in Russian 13 May 80 p 1] 7026

CHELYABINSKAYA OBLAST GRAIN CROPS--This year the farmers in Chelyabinskaya Oblast are sowing their grain crops on 2 million hectares. [Text] [Moscow PRAVDA in Russian 19 May 80 p 1] 7026

BRYANSKAYA OBLAST SOWING OPERATIONS--Bryansk--The farmers in Novozybkovskiy Rayon completed their sowing of grain and pulse crops earlier than all others in the oblast. Many difficulties were created by the unstable weather. However the mechanized complexes are working without disruptions or idle time and the equipment is being employed in two shifts. The best detachments required only 70-80 hours to sow all of the early crops. [Text] [Moscow GUDOK in Russian 16 May 80 p 1] 7026

MASS SOWING OF CORN--Belgorod--The oblast's kolkhozes and sovkhozes are sowing corn on a mass basis, with 264,000 hectares of land having been set aside for the principal fodder crop -- considerably more than in past years. Of this area, 80,000 hectares will be occupied by early ripening hybrids. [Text] [Moscow GUDOK in Russian 16 May 80 p 1] 7026

MULTI-PURPOSE UNITS--Minsk--The combining of many soil cultivation implements into one towed unit has enabled the Belorussian machine operators to make maximum use of the capabilities of their tractors. Today this assembly simultaneously cultivates and packs the soil, covers the seed together with fertilizers and harrows the soil. [Text] [Moscow GUDOK in Russian 16 May 80 p 1] 7026

UDMURT ASSR SOWING OPERATIONS--Izhevsk--High rates and expertise -- these are the principal signs of this year's sowing campaign in the Udmurt ASSR. At the present time, the mass sowing of spring crops is being carried out by the farmers in all rayons of the autonomous republic. Extensive use is being made of multiple-unit assemblies. The seed for grain crops has been placed in the soil on an area of 300,000 hectares -- one half of the spring grain fields in the Udmurt ASSR. [Text] [Moscow GUDOK in Russian 14 May 80 p 1] 7026

MOSCOW OBLAST GRAIN SOWINGS--Moscow--The grain growers in Moscow Oblast are raising the tempo of their field work. More than one half of the arable land set aside for grain and pulse crops has already been sown. Moreover, the sowing is being carried out in all areas using high quality seed. The work is being accelerated by extensive use of the Ipatovo method. Practically all of the farms have organized their sowing operations based upon the principle of a single field conveyer line in the oblast. [Text] [Moscow SOVETSKAYA ROSSIYA in Russian 22 May 80 p 1] 7026

SPRING WHEAT SOWING COMPLETED--Kuybyshev--The Kuybyshev grain growers completed their sowing of spring wheat during the best periods. This crop has been sown on an area in excess of 700,000 hectares. The sowing of barley, peas and sugar beets was also carried out on a rapid basis. [Text] [Moscow SOVETSKAYA ROSSIYA in Russian 22 May 80 p 1] 7026

INCREASE IN SOYBEAN SOWINGS--Khabarovsk--The sowing of soybeans -- the principal crop in the Priamur'ye region -- has commenced under complicated weather conditions. This year the soybean fields are the largest -- they have been increased by 4,000 hectares. The kray's field crop growers have vowed to complete their sowing of the "Far Eastern miracle crop" in just ten working days. [Text] [Moscow SOVETSKAYA ROSSIYA in Russian 22 May 80 p 1] 7026

ORENBURGSKAYA OBLAST FIELD WORK--Orenburg--The oblast's farmers are presently working in a very tense manner: they must carry out all of their field work on time and complete their sowing of spring crops during the best periods. [Text] [Moscow SOVETSKAYA ROSSIYA in Russian 22 May 80 p 1] 7026

LITHUANIAN SCHEDULE REVISION--The commitments of Lithuanian fieldworkers this year are to obtain an average of 28 quintals of grain per hectare, 161 quintals of potatoes, 252 quintals of sugar beet and to procure for the winter period 28 quintals of fodder units per head of livestock. Spring is late. On each farm it is now necessary to carry on simultaneously sowing of grain crops, perennial and annual grasses, fodder and sugar beet, flax and planting of potatoes. Earlier compiled work schedules in Lithuania have been revised, machine operators are economizing with minutes. [Excerpt] [Moscow PRAVDA in Russia 23 May 80 p 1] 7697

SPRING BARLEY--Tashkent--The grain farmers of Tashkentskaya Oblast have begun harvesting winter barley. The enterprises are harvesting 40 quintals of grain per hectare, 15 quintals more than planned. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 29 May 80 p 1] 8228

WORKING IN A COMPLEX--Kaluga, 22 May 80--The enterprises of Kozel'skiy Rayon were among the first in the oblast to complete the sowing of early grains. Now potatoes are being planted here at a rapid pace. Mechanized links began their care of crops simultaneously. On significant areas spike crops received a supplementary top-dressing with ammonia water. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 23 May 80 p 1] 8228

WORK IN TATARSKAYA ASSR--This year is special for the workers of Tatariya. The autonomous republic is 60 years old. Farmers have decided to gladden the homeland with a weighty grain harvest. In the republic spring crops will occupy about 2.5 million hectares. Village workers began to show concern for a good harvest on this extensive area in the fall of last year. Late-fall plowing took place on all spring fields and two-thirds of the area was plowed in the best agrotechnical time--before 10 September. As a result of slow work the proportion of first class seed has increased greatly. A record amount of organic fertilizer was taken out into the fields--20 million tons. The battle for a large grain harvest in Tatariya is continuing. There are 1,580 sowing complexes in the fields, including 5,340 sowing units. Competition for scheduled sowing and for high quality of all field work is being led by the farmers of Menzelinskiy, Buinskiy, Muslyumovskiy and Arskiy rayons. Simultaneously with the sowing of grains farmers are planting potatoes and beets. [Excerpts] [Moscow SEL'SKAYA ZHIZN' in Russian 25 May 80 p 1] 8228

ROLE OF LINKS--Kiev, 19 May 80--In the central and northern zones of the Ukraine, where the most extensive plantations of buckwheat are found, the sowing of this crop has begun. Production concentration has enabled enterprises of Chernigovskaya, Khar'kovskaya, Kiev and other oblasts to assign special links for each field and to utilize progressive agrotechnology more widely. For example, broad-row sowing with the simultaneous application of superphosphate is very effective. Tetraploid buckwheat will be planted after afterharvest crops. At least 68-78 days are required for the maturation of the novice, which is resistant to lodging and shedding. During testing at the Izmail'skiy State Plot it surpassed the standard by over 2 quintals per hectare. The grain farmers of the republic, in assigning great significance to buckwheat, have allocated almost 350,000 hectares of plowland for it. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 20 May 80 p 1] 8228

SOWING SOYBEANS--Vladivostock, 19 May 80--The Primor'ye is second in importance to Amurskaya Oblast in the sowing of soybeans in the country. It is planned to put no fewer than 150,000 hectares of plowland in soybeans. This is almost one-fourth of the entire sowing area in the kray. A large amount of attention is being given to improving the quality of agrotechnical operations. On the eve of sowing farmers performed two cultivations on each field and applied granulated fertilizer and herbicides into the soil. Enterprises have created 170 soybean sowing complexes. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 20 May 80 p 1] 8228

COMPRESSED SCHEDULE--Kemerovo, 14 May 80--Today the sowing of pulse crops was completed in Kemerovskaya Oblast. Despite the late spring, it was completed ahead of schedule and witn high quality. In the steppe rayons machine operators have begun sowing a high-yield variety of wheat, Omskaya-9. The work of complexes here is organized in two shifts. But in the oblast as a whole there is a shortage of machine operators for double shifts. For this reason kolkhozes and sovkhozes are being aided by over 2,000 upperclassmen of SPTU's [Agricultural professional-technical insiitute], who will gain practical experience in the fields under the guidance of experienced tractor operators. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 15 May 80 p 1] 8228

SUCCESS IN CORN FARMING--Kishinev, 17 May 80--The last sowing units have left the corn plantations of Moldaviya. Despite the unfavorable weather conditions, the sowing of this valuable grain-forage crop was completed on a compressed schedule that was close to optimal. This year corn is being cultivated for grain according to industrial technology, without the utilization of manual labor, on the entire area of 350,000 hectares. The creation of complex mechanized detachments has encouraged a significant growth in labor productivity. The average daily output per sowing unit has exceeded 25 hectares. Many enterprises, utilizing the great advantages of new technology, have overfulfilled sowing plans. Uniform shoots that are free of weeds are beginning to appear. This attests to the high quality of all operations, including herbicidal treatment. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 17 May 80 p 1] 8228

UNIFORM SHOOTS--Kurgan, 29 May 80--The grain farmers of the Zaural'ye have completed the sowing of wheat. Work was especially well organized in the enterprises of Safakulevskiy, Petukhovskiy, Tselinnyy, Kurtamyshskiy and Ketovskiy rayons. Weather conditions are favorable. On fields that were sown early uniform and even shoots of early grains and feed crops have appeared. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 30 May 80 p 1] 8228

CSO: 1824

LIVESTOCK FEED PROCUREMENT

PROGRESS, PROBLEMS IN IMPROVING PASTURES IN BELORUSSIA

Minsk SEL'SKAYA GAZETA in Russian 27 Apr 80 p 2

[Article by G. Rabtsevich, chief, Meadow and Field Feed Production Division, Belorussian SSR Ministry of Agriculture; A. Chernyak, division chief agronomist: "Meadows -- Rich Resource"]

[Text] This year the farms of this republic are to increase feed supplies to 21 million tons, converted to feed units, and 2.2 million tons of digestible protein. Only if this is achieved will the feed requirement of our livestock operations be met.

An exceptionally important and difficult target has been assigned. And a major role in achieving this target will be played by meadow pasturage and haymeadows, which comprise 35.8% of all agricultural acreage in this republic. We must state that we possess a considerable quantity of improved land -- 1,880,000 hectares. An entire aggregate of drainage and soil-improvement measures has been carried out on this acreage. The result is creation of water-air conditions which are favorable for grass growth, which makes it possible to produce more forage at less cost.

The potential of meadow acreage, however, is not yet being adequately utilized in this republic. First of all, a large number of rayons still have only 20-30% improved haymeadows and pastures. This is not a normal situation. And the degree of improvement of this feed-producing acreage of course determines to a significance degree its productivity. And the degree of improvement is exceptionally low.

This is why an important place in the system of measures to maintain improved meadow pasturage in a high-productivity state is occupied by their prompt regrassing. As indicated by studies conducted by scientific establishments and the practical experience of kolkhozes and sovkhozes, with the existing level of application of organic and mineral fertilizers to meadow acreage sown to grass mixtures, it is essential to regrass each year approximately 20% of improved haymeadows and pastures.

Unfortunately many kolkhozes and sovkhozes devote little attention to regrassing of degenerated grass stands. Utilization of grass stands for a period of 8-10 years as a rule leads to a sharp decline in productivity and worsening of the botanical composition of grasses. As a result, farms sustain unwarranted losses of the most inexpensive summer forage and put away little feed for the winter confinement period. A particularly poor job of utilizing such feed-producing acreage is being done by the farms of Smorgonskiy Rayon. Improved haymeadows and pastures in this rayon comprise 67.7%. Each year only 6-8% are regrassed. No regrassing at all has been done in the last 3 years on the Smorgonskiy Sovkhoz and Put' Il'icha Kolkhoz.

Availability of the basic nutrient elements in the soil around the grass roots constitutes the basis for obtaining high yields in improved haymeadows and pastures, particularly nitrogen. A special role is played by organic fertilizers, application of which, with radical improvement and regrassing, sharply extends the productive life of meadows and boosts plant resistance to adverse growing conditions.

Mineral fertilizers are still being applied to meadows in extremely inadequate quantity. In recent years application has been at an average rate of 50 kilograms of active ingredient per hectare for all haymeadows and pastures, including 20-30 kilograms of nitrate. By failing to apply the required quantity of mineral and organic fertilizers, farms do great detriment to feed production. In many cases the enormous capital spending on improving meadow acreage fails to produce the required economic effect.

And yet even with presently-allocated mineral fertilizer stocks, considerably larger quantities could be applied to meadow acreage. One reserve potential lies in redistribution of fertilizers among farm crops. It is a well-known fact that in many instances excessive fertilizer doses are applied to grains and potatoes (300 kilograms per hectare applied). At the same time research conducted at the Belorussian Scientific Research Institute of Grain and Grain Products indicates that on the average 200-220 kilograms of active ingredient is an economically warranted dosage in this republic. Application of mineral fertilizers to potatoes could be reduced. The results of a three-year full-scale experiment conducted on 24 farms in this republic attest to the fact that such a redistribution of mineral fertilizers will not lead to decreased grain and potato yields. By redistribution, these farms have boosted hay yields to 40-50 quintals per hectare and have not experienced a decline in grain and potato yields.

Meadow and pasture grass seed production plays an important role in the system of measures to improve productivity of feed-producing acreage. Each year this republic's farms need more than 26,000 tons of seed, including more than 8,000 tons of legume seed, for field and meadow grass seeding. The problem of producing grass seed in the required quantity and variety has not yet been resolved. Farms are only 32-percent supplied this year with their own legume seed for planning. White clover and Swedish clover are practically of unparalleled value as leguminous plants for haymeadows and pastures.

In spite of the fact that grass seed stocks are considerably larger, seed stock variety fails to meet production requirements. There is very little seed available of the following grasses: awnless brome grass, reed fescue, reedgrass, meadow foxtail, and Kentucky bluegrass. It is therefore essential to achieve greater specialization of grass seed production operations and increase concentration of seed crops.

This year considerable work is targeted for improving forage-producing acreage. Plans call for radical improvement of low-productivity natural haymeadows and pastures totaling 135,000 hectares, including 6,000 hectares with irrigation. In addition, plans call for regrassing previously improved meadows totaling 360,000 hectares.

This is why it is necessary for all farms to draw up forage production plans and schedules for harvesting green fodder and grass from meadow acreage and to determine grass stand mowing schedules. It is important to determine in detail periods of incomplete supply of bulk green feed for livestock from meadow feed production and to ensure timely planting of field feed crops in order to alleviate the livestock feed shortage.

Each and every hectare of meadow should work under full load.

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CSO: 1824

LIVESTOCK FEED PROCUREMENT

UDC 636.087.6

UTILIZATION OF DAIRY BY-PRODUCTS FOR LIVESTOCK FEED URGED

Sverdlovsk URAL'SKIYE NIVY in Russian No 4, Apr 80 pp 37-38

/Article by V. Shevtsov, economist: "By-Products for Livestock Feed"/

/Text/ Along with the work on the maximum possible strengthening of the fodder base an extensive utilization of by-products from the processing of livestock products can acquire great importance. This should become one of the trends in agroindustrial integration.

Facts indicate that, owing to mismanagement, imperfect technology and other reasons, we lose a large number of by-products during the processing of milk, slaughtering of animals and so forth. For example, a lot of blood, from which it is possible to prepare valuable feed additives, is lost at meat combines during the slaughtering of animals. After all, only 1 kg of blood meal contains 1.06 fodder units and 758 grams of digestible protein. Such milk processing products as buttermilk, whey and so forth possess a high biological value. For example, buttermilk contains 9.2 percent of dry substance, 3.2 percent of protein and 4.7 percent of milk sugar. One kg of this product contains 428 kcal.

The difficulties in the use of milk processing products for feed purposes, for example, lie in the fact that all of them contain more than 90 percent of water. This, of course, complicates their transportation and is reflected in an increase in the production costs of a fodder unit. The great gap in time between the production and feeding of by-products leads to losses of nutrients. Furthermore, most by-products are received during the summer period, when, as it is, animals are provided with feed better than during other periods of the year.

All this is so. But to give up the utilization of by-products for livestock feed would be an inexcusable mistake. As advanced experience shows, the condensation and drying of these products at dairy industry enterprises, especially during the period of the maximum arrival of milk, make it possible to create large stocks of valuable feed additives and to uniformly provide farms with whole milk substitutes during the winter and spring period. At the same time, condensed and dried products are kept well for a long time under certain conditions. For example, condensed whey, when it contains more than 60 percent of dry substance, can be stored in hermetically packed polyethylene bags for several months.

Valuable experience in the utilization of by-products for feed purposes was accumulated in Krasnodarskiy Kray. About 70 percent of condensed and 20 percent of dry whey of its total production in the country is produced there. For the future it is planned to prepare dry whey at two stages. At rayon and individual interrayon milk plants whey will be only condensed and at the large oblast milk plant, dried. Economically, this is the most profitable way.

The production experiment in the economic efficiency of the utilization of by-products conducted there showed the great advantage of this work. In the experimental group of hogs, whose ration, in addition, included 400 grams of whey, the daily weight gain per head was 531 grams--43 percent more than the weight gain of animals of the control group. When the expenditures on condensed whey per head were 1 ruble 56 kopecks per month, the cost of the additional weight gain was 5 rubles 34 kopecks, that is, additional profit reached 3 rubles 78 kopecks per head.

Up to 7 million tons of whole milk are now utilized for feed purposes in the country every year. According to the standards, 175 to 300 kg of whole milk and 200 to 400 kg of skim milk are used to feed one calf. This amount of milk can be greatly reduced if the production of its substitute is organized. Experiments show that, when whole milk substitutes and feed additives based on dry whey and separated milk are included in the ration of calves, they can grow and develop normally with an expenditure of 150 to 180 kg of whole milk.

The scale of whole milk substitute production is now quite large in the country. By the end of the current five-year plan 272,000 tons should be produced--2.5 times as much as in 1975. At the same time, however, whey should be utilized to the maximum. From this point of view of the greatest interest is the whole milk substitute-2, which contains 35.4 percent of skim milk, 18.2 percent of buttermilk, 27.2 percent of unseparated whey and 19.2 percent of a mixture of fats and fat additives.

In the Urals the production and use of whole milk substitutes as yet does not meet the optimum needs of farms. Meanwhile, 1 ton of a whole milk substitute "frees" 8 tons of whole milk, which increases its marketability. Furthermore, by feeding a sufficient amount of whole milk substitutes to calves, especially in winter, their preservation increases. Therefore, it is necessary to more widely utilize the experience in the establishment of interfarm shops for the production of dry skim milk and whole milk substitutes, as is done in Belgorodskaya Oblast, where 15 such shops--almost one-half of those existing in the country--operate. Shops are built at the base of existing milk plants with the funds of agricultural enterprises and the RSFSR Ministry of Meat and Dairy Industry provides them with equipment. The standard plan No 412-2-31 "Whole Milk Substitute Shop of a Capacity of 0.7 Tons in a Shift" is utilized during the construction of shops. The estimated cost of such a shop is 220,000 to 400,000 rubles. After these shops are put into operation, they are leased and operated by dairy industry enterprises. The rent is 7,000 rubles annually.

Consolidation of economic production relations between dairy industry enterprises and farms will contribute to the strengthening of the fodder base and increase in the productivity of animal husbandry.

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CSO: 1824

LIVESTOCK FEED PROCUREMENT

MISMANAGEMENT IN COLLECTION OF FOOD SCRAPS FOR FEED IN GOMEL' SCORED

Minsk SEL'SKAYA GAZETA in Russian 17 May 80 p 2

[Article by N. Yermakov, correspondent of SEL'SKAYA GAZETA, Gomel': "When There Is No Coordination"]

[Text] A special truck stops in front of the residential houses on Privokzal'naya Street in the city of Gomel' at a strictly appointed time every day. The following picture can be observed there every day. Together with the household garbage tenants throw out pieces of bread and other food scraps.

Such mismanagement occurs, because house administration No 21 did not see to it that additional feed, which many kolkhozes and sovkhozes located near the oblast center need badly, is collected.

The experience of many farms indicates that scraps are quality feed. On the Kolkhoz imeni Lenin in Gomel'skiy Rayon large-horned young cattle gains 800 grams and more every day. On the fattening Yuzhnyy Sovkhoz in the same rayon more than 15 percent of the feed prepared from grain is replaced with food scraps. Food leftovers from dining rooms, coffee houses and restaurants are successfully used on the Krasnogvardeyets, Kommunist, 1 Maya and other kolkhozes.

All kolkhozes and sovkhozes in Gomel'skiy Rayon express the desire to receive as many food scraps as possible. In the opinion of farm managers, such a possibility exists. A special oblast office for the collection of unplanned feed has been established in the city. Transport facilities and some funds are allocated for it. However, the problem is that up to now there has been no coordination between it and the city's house administrations. The office is interested in receiving more scraps, but some house administrations consider this to be a burden, although it should be noted that house managers and technicians receive additional pay for the collected feed. In many places it is not considered necessary to promptly select people for bringing scraps down from the floors of multistory houses. In houses No 11 on Staro-Chernigovskaya Street and No 94 on Kirov Street scraps have not been collected regularly for the second month now.

Sometimes overflowing containers, in which valuable feed rots, are not emptied for a week and a half. On the other hand, on some days 2 to 2.5 tons of scraps are removed from there. It should be noted that, essentially, these scraps are spoiled.

"House administration No 16 is to blame for this," the oblast office explained.

We telephoned house manager N. T. Rogov.

"I haven't been here long," he answered. "Frankly, I don't know what's been going on. I will try to look into things."

He "has been looking into things" for two weeks now. Disorder has increased during this time. Scraps from three nine-story houses on Sortirovochnaya Street have not been removed for a long time. The reason: lack of a waste collector.

Of course, the examples cited do not give a complete picture of the situation that has been created. The list of house administrations and individual houses where a careless attitude toward the procurement of additional feed is tolerated can be continued. In practice, every microrayon and every street have their "hot" points. At first people try to collect food leftovers, but, noting that no one is especially concerned with them, throw out bread, potato peels and egg shells into the garbage chute or to the special trucks that come to take the garbage. Thus, the scraps received by kolkhozes and sovkhozes are sharply reduced. For example, whereas 30 tons of scraps were collected in the city in January, only 26, in March.

"On the whole, we are fulfilling our plan," said I. Semenushkin, chief of the oblast office. "What more is needed?"

In fact, according to the report data, last year's general assignment was fulfilled. But, of course, this is not the point. Minor calculations convinced us that no more than one-third of what the city residents can give kolkhozes and sovkhozes is used according to purpose and the rest is dumped. A considerable part of the unplanned feed is taken from fruit and vegetable depots and the wine making plant, because there is less trouble there. A truck is sent, what these places offer is loaded on it and that's the end of the matter.

The search for easy ways led to the fact that last year all the rayons in the city of Gomel' failed to deliver a large amount of food scraps, which should have been collected from the population, to kolkhozes and sovkhozes. In particular, Zheleznodorozhnyy Rayon failed to deliver 493 tons and Sovetskiy Rayon, 431 tons. A similar situation was also observed during the first quarter of this year.

The problem is that many house administrations do not see to it that scraps are collected promptly and that people are selected to ensure this important part of the work. On its part the oblast office does not ensure an efficient removal of what has been collected. For example, in house administration No 10 people complain that almost everyday they have to telephone and ask that a truck be sent to pick up the scraps. In turn, the oblast office is angry at house administrations, because trucks travel in vain along some routes--containers with scraps are not taken out from houses to the place agreed on. In brief, there is a great deal of confusion in this fundamentally important matter. Instead of carrying on propaganda among the people for the need to collect food scraps, the reverse is true.

Will this situation continue for a long time?

"We don't know," people at house administrations said. "As is often the case, the first quarter has passed and we still don't have the annual assignment."

How then can there be order?

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BITTER LUPINE FOR CATTLE IN NORTHWEST RSFSR

[Editorial Report] Moscow SEL'SKOYE KHOZYAYSTVO ROSSII in Russian of May 1980 carries an 800-word article informing cattlemen in the northwestern RSFSR that bitter lupine [Gor'kiy Lyupin] is a good food. The article, written from Vologodskaya Oblast, begins by noting bitter lupine's under utilization: "Perennial bitter lupine, containing many alkaloids, was formerly not used for fattening livestock, yet it is rich in both protein and carotine. As small additives to the ration, especially for young stock of large horned cattle on finishing and fattening, it can substitute for up to a quarter of the livestock requirements for these nutrient elements.

"The Northwestern Scientific Research Institute of Dairy and Meadow-Pasture Farming [at which the author A. Kamyshkov is senior agronomist] has worked out a method for removing the bitterness and getting quality protein-vitamin feed...."

The remainder of the article is devoted to work in Vologodskaya Oblast, especially at the Institute, in processing bitter lupine to get the most from it as a cattle feed.

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CSO: 1824

LIVESTOCK FEED PROCUREMENT

OIL RADISHES SUGGESTED FOR LIVESTOCK FEED IN MOSCOW AREA

[Editorial Report] Moscow LENINSKOYE ZNAMYA in Russian on 4 April carries a short article on page 2 which states that row crops for feed are an important source for augmenting livestock feed supplies. Oil radishes in particular are cited for their rapid ripening and cold resistance. They are a high yielding crop: 150-400 quintals of green mass per hectare. The remainder of the article is devoted to harvesting advice and more precise details on the nutrient content of oil radishes.

CSO: 1824

LIVESTOCK

PROBLEMS IN DAIRY INDUSTRY IN VOLGA AREA

Moscow SOVETSKAYA ROSSIYA in Russian 23 May 80 p 1

[Article by V. Lysenko: "Drops in Milk Output"]

> [Text] To ensure the further increase in production and procurement of milk means doing one of the most important tasks set by the November (1979) Plenum of the CC CPSU for agriculture. Despite the unfavorable weather conditions of the recent winter, many kolkhozes and sovkhozes of the republic produced and sold more milk than one year ago and increased the head of cattle. But on the whole for the Russian Federation, towards the middle of May, as the RSFSR Central Statistical Administration reports, only 55 percent of the overall volume of purchases in milk according to the plan was carried out during the first half of the year. In comparison with the same period last year, they were approximately 800,000 tons short in products, including 127,000 tons of products not submitted by animal husbandry workers in the Volga area.

According to the results of the first quarter, the Challenge Red Banner of the RSFSR Council of Ministers and the All-Union Central Council of Trade--Unions and the first monetary prize were given to the Tatarskaya ASSR for the increase in production and procurement of animal husbandry products and for increasing the productivity of livestock and poultry. In the middle of May the rates here did not decrease. This is the only area of the Volga where the amount of milk purchased was more than the previous year.

On the whole in the region, one must admit, that the dairy farms are developing weakly. The facts attest to this. Only 90 percent of the plan for the first quarter for procurement was carried out. The farms of Saratovskaya, Penzenskaya, Ul'yanovskaya, and Astrakhanskaya oblasts and the Kalmytskaya ASSR, where only 78-86 percent of the tasks were carried out and the level of purchases was reduced by 14-31 percent, are in debt to the government. The procurement of milk in April has slowed down even more and in May the situation was being corrected too slowly.

Besides this period in the concluding year of the five-year plan farm workers of the Volga area must sell almost 4,900,000 tons of milk, that is, 5.2 percent more than last year. A serious lag in the first one and a half quartem complicates the task and the rates of increase must be multiplied by more than two for what was intended.

What interrupts the business? First of all it is the low productivity of the cows. On the average in the Volga area farms, in the course of four months, 578 kilograms of milk is taken from each cow--52 kilograms less than in 1979, while on the farms of the Kuybyshevskaya, Penzenskaya, Ul'yanovskaya, Saratovskaya, Astrakhanskaya oblasts and the Kalmytskaya ASSR the amount of milk taken was reduced by 60-180 kilograms. In this step backward many inadequacies were expressed in concentrated fashion: both the poor feed of the dairy herd and the weak organization of the mass milking of cows and breeding work.

But there are other obstacles in the path of increasing milk production and primarily the extremely slow growth of the number of cattle. On the whole for the area it has remained at last year's level although in the Ul'yanovskaya and Volgogradskaya oblasts and the Bashkirskaya ASSR it grew somewhat while on the farms of the Astrakhanskaya, Penzenskaya, Saratovskaya oblasts and the Kalmytskaya ASSR it decreased. Apparently, the time has come to increase capital investment for expansion, for the reconstruction of existing and for building new facilities for replacement herds, for additional organization of farms for raising future cows. The interests of the business requires such rates of cattle production in order that annually an increase of dairy cattle be insured within the boundaries of 3 to 4 percent.

All of these problems can be more easily solved where a progressive shop--flow-line system of housing animals is implemented. On the Progress Kolkhoz of the Kuybyshevskaya Oblast, where they have been working at it for two years, they have been receiving high yields of milk--about 3,600 kilograms and 114 calves per 100 cows. This is not a bad result and a weighty argument in favor of the progressive technology. But it was advantageously evaluated only in the Kuybyshevskaya and partially in the Saratovskaya oblasts; it is particularly successfully implemented in Tatariy. In other areas of the Volga area, they have hardly attempted to use this resource.

The problem of the quality of the milk still remains a pressing issue. Although in a number of areas in the region, for example in the Penzenskaya Oblast and Tatariy, they were able to go forward somewhat and increase the share of top grade products by up to 85 percent. On the whole in the area the situation is not good: the Astrakhanskiy and Kalmytskiy farms sell too little of it.

Here is another channel of "milk loss." Due to the low level of fat in the milk, the kolkhozes and sovkhozes of the Penzenskaya, Ul'yanovskaya, Saratovskaya oblasts and Bashkiriya from 4 to 9 thousand tons were not included in the plan, that is, about 5-8 percent of the overall quantity of the products submitted.

The development of dairy animal husbandry at the present stage is not possible without the specialization and concentration of production on the basis of inter-economic cooperation and agro-industrial integration. What kind of an example is being given by the Volga area signals for the farms--dairy complexes which numbered over 150 in the area? Unfortunately, many of them operate at half capacity. The explanation is found in the fact that one out of three of them does not have a full complex of cows. The projects stipulate the productivity of each animal at the project to be 3,500 kilograms of milk; however, this level is reached only at 11 of them and at 12 of them they get slightly over 3,000 kilograms.

The animal breeders of the Volga area have at their disposal all of the opportunities in order to improve the efficiency of dairy production to the level required by today. The nearest task is to successfully complete the transfer of the cattle to pasture land, achieve the highest productivity of cows during the summer, make up for losses during the first months of the year and successfully manage the plans and obligations.

Attention: disturbing figures!

During the 4.5 months the farms of the Volga area were short in their delivery of milk to the state in the amount of 127,000 tons in comparison with the same figure of last year.

The Saratovskaya, Penzenskaya and Astrakhanskaya oblasts were short 73,000 tons.

Fifty-five percent was the figure of the carried out portion of the plan for the six months in milk procurement.

Fifty-two kilograms was the amount not received of milk from each cow compared with last year.

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LIVESTOCK

UDC 636.22/28.084.52.003

WHY BEEF PRODUCTION IS NOT PROFITABLE FOR ALL KOLKHOZES

Sverdlovsk URAL'SKIYE NIVY in Russian No 11, Nov 79 pp 24-26

[Article by A. Chichilov, minister of Agriculture, Urdmurt ASSR; R. and V. Trikoz, lecturers at the Izhevskiy Agricultural Institute]

[Text] Presently, the meat problem is of urgent significance. The state is rewarding farms which strive to increase meat production, including beef, with the most diverse economic measures. But not all of the kolkhozes of the Urdmurt ASSR are skillfully using the resources which have been made available, are not always correctly oriented to the economic situation.

We analyzed the activity of 240 kolkhozes in all 4 zones of Urdmurtiya--the Northern, the Southern, the Southwestern and the Suburban. In each of the zones, 6 groups of kolkhozes have been isolated on which the production cost of a quintal of meat from large horned cattle fluctuated within the following limits: up to R 140; R 140-160; R 160-180; R 180-200; R 200-220; more than R 220.

And it is known that the purchase prices are set according to the average actual production costs of a product for those farms which provide the bulk of it. We applied this principle to each zone of the republic individually, and we established that, on the average, about 60 percent of the meat (greater than 70 percent in the suburban zone), independent of the zone, is produced on those farms where 1 quintal of it requires from R 140-180. There is a somewhat different situation in the southern zone, but more about that below.

It was these groups of kolkhozes, the ones that produced the bulk of the meat for the KRS [expansion unknown], which were selected for further analysis. It turns out that there is no direct dependence between the production cost for meat from cattle and its selling price within any zone. Throughout the republic on the whole, 36 percent of the kolkhozes spent up to R 160 for a quintal of meat, while 64 percent of all farms sold it at such a price; on 52.9 percent of the farms production costs for a quintal of meat were R 160-200, while only 29.86 percent of the kolkhozes sold it at such a price.

In a word, it was revealed that production costs for a unit of production within the same group of kolkhozes can be identical, whereas the selling prices may differ significantly.

It was necessary to establish why this occurs. To this end we took the northern zone in which we isolated two groups of farms (having divided each into subgroups). We assigned 23 kolkhozes having an average selling price for a quintal of meat equal to R 148.65 and 9 kolkhozes selling meat at R 188.15 to the first group; there were 25 kolkhozes with a selling price of R 147.73 and 8 with a price of R 183.04 per quintal remaining in the second group (Table 1).

Table 1

Economic indicators for production of meat from large horned cattle by groups of kolkhozes in the northern zone of the Urdmurtskaya ASSR

Indicators	Production cost of 1 quintal of meat by group			
	R 140-160		R 160-180	
	I	II	I	II
Number of kolkhozes	23	9	25	8
Capital allocation, thousands of rubles	32	38.2	36	31.7
Agricultural land resources per worker, hectare	14.7	13.3	12.97	12.85
Production cost per quintal of meat, rubles	158.0	149.95	174.89	168.8
Average selling price of 1 quintal, rubles	148.65	188.15	147.73	183.04
Level of profitability, percent	-5.93	25.48	-15.52	8.43
Number of head sold per kolkhoz on the average	331	316	434	563
Average weight on the hoof per head, kg	262	343	220	340
Feed unit consumption per quintal of weight increase, quintals	9.74	9.8	7.87	10.11
in t. ch. [expansion unknown] of concentrates, quintals	2.03	2.45	2.4	2.63
Production costs per quintal of feed units, rubles	8.77	6.56	8.22	9.56
Grain yield, quintal/ha	11.46	16.9	11.66	10.98
Meadows and pasture per kolkhoz, ha	320	677	628	1155

A comparison of the economic indicators for the kolkhozes from the vantage point of revealing regularities for a direct dependence of production cost and selling price per unit of production on any objective production conditions whatsoever provided nothing. The difference in the capital allocation was not very great, nor was the area of agricultural land resources per worker. But the production cost per quintal of meat is lower for kolkhozes in the first group than for those in the second by R 24.94 while the average selling price is greater by R 40.42. The fact is that kolkhozes in the first group deliver cattle with an average weight on the hoof of 343 kg per head whereas in the second group it is only 220 kg. The cause is primarily in the varied level of fodder production and feeding. On kolkhozes in the first group, the average grain yield was 16.9 q/ha, while in the second it was 11.66 q/ha.

One may compare the kolkhozes of the first subgroup of group 1 with kolkhozes in the second subgroup of group II which have approximately identical capital and manpower allocations, grain yield and even fodder consumption per unit of weight increase. But the production cost of a quintal of meat on kolkhozes in the second subgroup of group II are greater by R 10 and its selling price is greater by R 34.4, a fact insuring profitable operation.

The data from Table 2 show that the farms which were under scrutiny achieved such results because of the difference in weight on the hoof per head of cattle being sold: 340 kg vs. 262 kg. It is sometimes more useful to increase the production costs for meat production somewhat and produce heavier animals. All of these questions should be resolved taking the specific circumstances of the farms into consideration. But one requirement is indispensable--to be involved in intensive production, to produce high average daily weight gains, to reduce the duration of fattening and to turn over only high-quality animals for meat. An analysis of kolkhozes in the republic's southern zone confirms this (Table 2). Here 2 subgroups of farms differing by the varied selling price were isolated within the group of farms with production costs per quintal of meat being up to R 190. For practical purposes, the farms have no great differences in the level of the intensity of agricultural production. Thus one cannot explain the difference in the production cost for producing one quintal of meat or in the (selling) price by groups of kolkhozes using objective conditions. The reason for the adequately significant difference in selling price lies in the varied level of intensity with which cattle are fattened.

On the kolkhozes of the first subgroup, there is extensive fattening of the animals, with the quantity of fodders being small. The latter is confirmed by the fact that these farms sell cattle with very low weight on the hoof per head--224 kg., hence, the low average selling price of meat--R 149 per quintal. Kolkhozes in the second subgroup succeeded in raising the average weight on the hoof per head of cattle being sold to 305 kg by intensification of the fattening process. This permitted them to turn over animals of average and above-average fattness and insured above-plan cattle sales at increased prices. Therefore the average selling price of 1 quintal of meat reached R 204.9.

Table 2

Economic indicators for meat production from large horned cattle by various groups of kolkhozes in the southern zone of the Urdmurtskaya ASSR

Indicators	Subgroups I	Subgroups II
Number of kolkhozes	9	4
Capital allocation, thousands of rubles	39.8	37.8
Agricultural land resources per worker, ha	13.6	11.9
Production cost per quintal of meat, rubles	189.0	185.7
Average selling price of 1 quintal, rubles	149.0	204.9
Level of profitability, percent	-21.2	16.7
Number of heat sold per kolkhoz on the average	424	286
Average weight on the hoof per head, kg	224	305
Feed unit consumption per quintal of weight increase, quintals	11.6	11.1
in t. ch. [expansion unknown] of concentrates, quintals	3.4	3.6
Production costs per quintal of feed units, rubles	8.97	6.35
Grain yield, quintal/he	14.9	19.8
Meadows and pasture per kolkhoz, ha	839	803

This means that when business is efficiently organized, meat production from large horned cattle may be profitable on all of the kolkhozes in the group. This position is revealed most precisely in the republic's suburban zone (Table 3).

Within the zone, two subgroups of farms sharply differing among themselves on the basis of the average selling price for large horned cattle have been isolated within the 2 groups. In the first group of kolkhozes, this difference was from R 166 to R 247 and in the second from R 151 to R 212. It was necessary to determine to what extent differences in the production costs and the selling price for large horned cattle throughout the groups and subgroups of farms depended on objective production conditions: capital allocations, manpower allocations, structure of agricultural land resources and level of feeding for the animals. It may be seen from the table that there are differences. In those subgroups of kolkhozes where there is a higher meat selling price, the capital allocation is significantly higher while the manpower allocation exceeds the indicators for the other subgroup by a factor of 2.5-3. Moreover, on kolkhozes of the second subgroup, there are significantly fewer meadows and pasturelands. Thus, kolkhozes in the second subgroup are farming more intensively. This fact is confirmed by the higher grain yield; on the whole, the conditions for fattening cattle are better on these farms than on kolkhozes of the first subgroup. Therefore the average weight on the hoof for a single head of large horned cattle sold to the state by kolkhozes in the second subgroup was 410-308 kg, but only 287-262 kg throughout the first subgroup. And since existing purchase prices for meat depend on fatness of the cattle, the average weight on the hoof and above-plan sales, they were significantly greater at kolkhozes in the second subgroup than in the first. Consequently the higher level of production intensity justifies itself economically.

Table 3

Economic indicators for meat production from large horned cattle by groups of kolkhozes in the suburban zone of the Urdmurtskaya ASSR

Indicators	Production cost of 1 quintal of meat by group			
	I	II	I	II
Number of kolkhozes	6	2	8	4
Capital allocation, thousands of rubles	35.6	42.1	38.0	43.5
Agricultural land resources per worker, ha	17.6	7.6	16.6	5.1
Production cost per quintal of meat, rubles	150.34	154.77	172.34	171.44
Selling price per quintal of meat, rubles	166.25	247.33	151.08	212.6
Level of profitability, percent	10.58	59.8	-12.33	24.0
Number of head sold per kolkhoz on the average	732	474	628	970
Average weight on the hoof per head, kg	287	410	262	308
Feed unit consumption per quintal of weight increase, quintals	8.4	8.8	10.0	8.8
in t. ch. [expansion unknown] of concentrates, quintals	2.85	2.19	2.25	2.85
Production costs per quintal of feed units, rubles	9.05	8.11	6.86	9.97
Grain yield, quintal/ha	19.0	25.3	15.61	18.95
Meadows and pasture per kolkhoz, ha	1394	383	2042	918

At the same time, it may be seen from Table 3 that, given an approximately identical level of intensity, production costs and selling price per quintal of meat from large horned cattle differ sharply. This fact is detected upon comparison of the results for operation of kolkhozes in the first subgroup of the various groups and in the second subgroup of the groups. Thus, on kolkhozes in the second subgroup, the production costs for a quintal of meat flucturates from R 154.77 to R 171.44, while the selling price varies from R 247.33 to R 212.6. This fact no longer depends on objective conditions, but on the level to which production is organized.

On kolkhozes in the second group, grain productivity is significantly lower, and the average weight on the hoof per head of large horned cattle is less, given the same consumption of fodders per unit of weight increase. As a result, the level of profitability of meat production from large horned cattle on kolkhozes in the first group was almost 60 percent, while it was only 24 percent in the second group. And this is not coincidental. The farms in the first group are the kolkhozes "Put' Il'icha" and "Truzhenik" of Zav'yalovskiy Rayon, kolkhozes widely known in our republic and distinguished by high organization of production and fine cadres of specialists and stock breeders. And the effectiveness of agricultural production depends not only on the size of investments of means and labor, but of the level of its organization as well, i.e. on the managers and specialists of the kolkhozes and wovkhozes; it is determined by their qualifications, their work experience and the skillful application of all systems of measures for material and moral worker incentive.

In this regard, prospects for developing interfarm cooperation for fattening large horned cattle are great. There are 22 cattle-fattening enterprises operating in a cooperative basis in the republic. In 1977 labor productivity on these farms was greater by a factor of 3 than that on the average throughout the kolkhozes, and the production costs of the product was 9-10 percent lower, while the average selling price was 40-50 percent higher. Inter-farm enterprises operated profitably when production of beef on kolkhozes was unprofitable. It is not difficult to draw a conclusion from this fact.

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INCREASED WORK EFFECTIVENESS AT STATE BEEF PRODUCTION COMPLEXES URGED

Moscow ZHIVOTNOVODSTVO in Russian No 3, Mar 80 pp 13-15

[Article by V. D. Luk'yanov, chief specialist, USSR Glavzhivprom: "Improved Performance Efficiency of State Beef Production Complexes"]

[Text] Analysis of the performance of complexes over the last five years indicates that the industrial production technology incorporated in them makes it possible to conduct in an intensive manner raising and fattening of cattle.

The highest animal productivity and beef production effectiveness figures were obtained at state complexes with a capacity to raise and fatten 10,000 head of young cattle per year (see table).

In 1979 these complexes raised and fattened more than 200,000 head of young cattle, produced 64,900 tons of weight gain, and sold the state 72,000 tons of beef, 8,500 tons more than in 1978. Excellent results were achieved by the Mir complex in the Belorussian SSR, which met its socialist pledges in the area of beef production and is the leader among this country's presently-operating complexes.

Good results in competition were achieved by the following complexes: Pashskiy in Leningradskaya Oblast, Valuyskiy in Belgorodskaya Oblast, Druzhba in Vologodskaya Oblast, and Yumatovskiy in the Bashkir ASSR.

At the November (1979) CPSU Central Committee Plenum, CPSU Central Committee General Secretary Comrade L. I. Brezhnev focused major attention on problems of supplying the population with foodstuffs, especially meat. "In tackling this problem," stated L. I. Brezhnev, "we naturally placed emphasis on boosting agriculture. In the course of the last three five-year plans alone, approximately 400 million rubles has been invested in our rural areas. Considerable capital investment will also be allocated for rural areas in the 11th Five-Year Plan. At the same time we are both justified and obligated to impose greater demands on efficient utilization of resources and equipment, to ensure that strengthening of agricultural facilities has a more appreciable effect on the level of supplying our country with foodstuffs." These instructions also apply in full measure

Principal Economic Indices of Complexes With Capacity of Raising and Fattening 10,000 Head of Young Cattle, for 1979
TABLE

Complex	Number of Head as of 1 January 1980 (thousand head)	Gross Weight Gain (tons)	Average Daily Weight Gain (grams)	Sold to the State, Weight on the Hoof (tons)	Feed Consumption per Quintal Weight Gain (quintals of feed units)	Labor Expended per Quintal of Weight Gain (man-hours)	Average Weight of Stock Sold to State (kg)	Production Cost of One Quintal of Weight Gain (rubles)
Voronovo, Moskovskaya Oblast	12,7	3862	958	[illegible]	5,6	3,9	430	107,00
Pashskiy, Leningradskaya Oblast	11,2	4099	1023	4679	5,6	2,8	426	121,38
Yumatovskiy, Bashkir ASSR	11,0	4242	[illegible]	4706	5,6	2,5	487	103,00
Mir, Belorussian SSR	10,9	4462	1088	4628	5,4	2,4	463	99,33
Imeni 25th CPSU Congress, Ukrainian SSR	14,6	4890	947	[illegible]	5,5	3,7	439	121,40
Dzhetygenskiy, Kazakh SSR	10,9	[illegible]	901	4203	5,9	3,3	420	119,01
Donskoy, Stavropol'skiy Kray	11,1	3821	930	4219	6,4	3,4	427	124,10
Imeni 50th Anniversary of Komsomol, Uzbek SSR	11,3	2871	700	[illegible]	7,1	6,7	[illegible]	[illegible]
Valuyskiy, Belgorodskaya Oblast	11,1	[illegible]	[illegible]	[illegible]	5,8	4,2	431	103,74
Dubrovskiy, Chelyabinskaya Oblast	10,1	[illegible]	1003	[illegible]	6,2	3,3	468	[illegible]
Druzhba, Vologodskaya Oblast	11,6	[illegible]	1027	[illegible]	6,0	2,3	464	[illegible]
Pogranichnik, Moldavian SSR	10,3	[illegible]	676	[illegible]	9,2	[illegible]	266	[illegible]
Grigoriopol'skiy, Moldavian SSR	10,4	[illegible]	712	2917	8,6	6,8	[illegible]	[illegible]
Tolmachevskiy, Gor'kovskaya Oblast	11,9	[illegible]	935	2818	5,7	4,1	424	[illegible]
Gamovskiy, Tul'skaya Oblast	9,1	[illegible]	784	3118	7,1	[illegible]	[illegible]	[illegible]
Solnechnyy, Kuybyshevskaya Oblast	10,5	[illegible]	632	[illegible]	6,9	5,4	434	[illegible]
Mayskiy, Krasnoyarskiy Kray	9,4	[illegible]	[illegible]	2150	6,7	6,4	298	172,11
Yegvarde, Armenian SSR	9,3	2112	667	2341	7,9	9,0	314	170,49

to the operations of certain livestock complexes which are doing a poor job of utilizing allocated investment capital. What other reason can there be for the fact that with practically equal conditions for maintaining young stock, good results have been achieved by the Mir, Pashskiy, Yumatovskiy, and Voronovo complexes, while delay in reaching designed production capacity has occurred at the following complexes: Pogranichnik and Grigoriopol'skiy in the Moldavian SSR, imeni 50th Anniversary of Komsomol in the Uzbek SSR, and Yegvarde in the Armenian SSR. This is due primarily to poor supply of coarse and succulent feeds and delay in putting irrigated acreage into production. For example, at the Complex imeni 50th Anniversary of Komsomol in the Uzbek SSR, only 2,871 tons of gross weight gain was achieved, or 75% of calculated production on the basis of standard figures for movement on-stream, in 1978 due to extremely poor supply of coarse and succulent feeds. At this complex, with requirements of 2,300 hectares of irrigated acreage, 1,365 hectares have actually been brought into operation, including 400 hectares in 1973, 160 in 1975, and 805 in 1976. More than half of this acreage was in a temporary technical operation stage and was producing poor yields due to considerable ground subsidence and features of topography. For example, each hectare of this acreage produced average yields as follows: 35 quintals of alfalfa hay, 102 quintals of silage corn, and 113 quintals of bulk green alfalfa. Nor has the situation improved. As a result of poor supply of feed produced on-farm, the complex has poor production indices on product output and sales. At the same time the Dzhetygenskiy complex in the Kazakh SSR, which is operating under comparatively identical climatic conditions, has produced better figures than the Complex imeni 50th Anniversary of Komsomol in the Uzbek SSR. The Dzhetygenskiy complex achieved 718 more tons of weight gain and sold the state 696 tons more of livestock on the hoof, with a substantially lower expenditure of labor and feed per quintal of weight gain than at the Complex imeni 50th Anniversary of Komsomol. This attests to poor organization of labor, a lack of requisite verification of observance of proper procedures of fattening stock, as well as unsatisfactory care of equipment in the process of equipment operation.

The situation is similar at the Grigoriopol'skiy complex in the Moldavian SSR, which has only 330 hectares of irrigated acreage, and at which feed preparation shop operations have not yet been fully set up.

The Yegvarde complex in the Armenian SSR is operating below its potential; every year the quantity of on-farm produced feed is inadequate, and acquisition of and hauling young stock to the complex is poorly organized. The complex produced only 2,143 tons of weight gain in 1979 (fourth year of operation), or 68 percent of the designed output capacity. Labor expenditures and feed consumption at this complex are the highest of all complexes presently operating in this country, comprising 7.9 man-hours and 9.0 quintals of feed units per quintal of output respectively.

Another reason for this situation is that the construction organizations of the USSR Ministry of Land Reclamation and Water Resources are not fully providing fulfillment of the plan target pertaining to putting reclaimed acreage into production at the complexes.

The weak link in organization of meat production is acquisition of young stock. On the average 51.6 percent of the total number of calves born each year on this country's kolkhozes and sovkhozes are born in a four-month period (February through May), while only 16.2 percent are born from July through October, while the seasonal nature of calving is even more strongly marked on the farms in certain republics. In connection with this, farms with a total of not less than 50-60 thousand breeding cows are assigned to each complex, but even with this arrangement almost all complexes experience difficulties with stock in the summer period.

USSR Glavzhivprom has developed a new method of variable-uniform supplying of young stock to complexes taking account of the seasonal nature of calving (ZHIVOTNOVODSTVO, No 4, 1976). This principle is applied at the experimental complex of the Sovkhoz imeni Tel'man in the Tadzhik SSR, with a capacity of raising and fattening 10,000 head of young cattle per year. It is based on the principle of periodically varying duration of livestock confinement, which makes it possible to take from 400 to 1600 calves per month for the first period of raising, that is, the bulk of bull calves born on the supplier farms.

In view of the fact that month-by-month distribution of calvings is similar in the majority of republics and oblasts, with a differing degree of markedness of seasonal fluctuations in calvings, the proposed method is acceptable for preparing cyclograms of the operation of such complexes in various zones in the USSR.

Bringing in older and heavier calves, as well as unlimited feeding of young stock with feed mixes in the first period of growth lead to a 30-40 percent overconsumption of short-supply starter feed mixes (KR-1) in comparison with calculated standard amounts. At the same time unlimited feeding of feed mixes in the first period of growth, when cicatricial digestion is forming in the animals, has a negative effect on development of rumen volume due to a deficiency of coarse feeds, and therefore such young stock is subsequently unable, during the finishing period, of consuming a sufficient volume of feed mixes, which evidently is the reason for decrease in daily average weight gain two to three months prior to reaching finished condition. Taking this into account, as early as 1975 the Mir complex adopted standard feed mix rations for calves during the first growth period. Feed consumption declined by 23-36 percent in comparision with other complexes, and feed savings per animal totaled 65-133 kg. At the same time haylage consumption in the second period of growth increased significantly, while the percentage share of concentrates in the overall ration structure declined by 3-9 percent and approached technical standards. Redistribution of weight gain by periods took place on the complex due to norm-specified feeding of concentrated feed mixes: in the first period weight gains declined, but they increased substantially in the second. For 1978, for example, the average daily weight gain was 824 grams in the first period, 1,201 grams in the second period, and 1,090 grams on the average for the Mir complex, which surpasses the performance of all other complexes operating in the Soviet Union, and labor expenditures and feed consumption comprised 2.4 man-hours and 5.4 quintals of feed units respectively per quintal of output.

These figures attest to the necessity of adopting norm-specified feeding of feed mix concentrates during the first growth period, while maintaining

Scientific Research Institute of Livestock Breeding) that green feeds be given during the last two months of finishing, in order to prevent a decline in net slaughter weight and diminished quality of the meat produced. However, in order to achieve guaranteed uninterrupted feeding of young stock, it is necessary to lay away a full year's stock of haylage for the complex, with part of this supply utilized as carryover emergency stocks.

Positive results were obtained at the Mir complex in utilizing molasses in feeding young stock in the second period. At this complex skilled local personnel designed and set up simple equipment to add molasses directly to the conveyer feeding bulk haylage, which made it possible to standardize the sugar-protein ratio in the livestock ration and substantially to increase the average daily weight gain during the finishing period.

The Mir complex also was a pioneer in reducing labor outlays. The zveno [production team] system of organization of labor was employed to achieve this end. Three production teams (of three persons each) were established for taking care of the needs of young stock, with each operator work-loaded with 350 head in place of the 180 head according to the conventional arrangement, and four production teams for final raising and fattening stock, with each operator work-loaded with 1,040 head in place of the 720 specified by the original scheme. All substitute operators were eliminated with this work organization, which helped increase the responsibility of servicing personnel and improve care of the stock, and also help increase worker wages. The production team organization of labor has also been adopted at the Yumatovskiy complex in the Bashkir ASSR, the Druzhba complex in Vologodskaya Oblast, and the Donskoy complex in Stavropol'skiy Kray. Exchange of production and work experience among complexes has promoted implementation of a number of suggestions which are improving operating processes. For example, heating of water for first-period calves has been adopted almost everywhere, which has reduced pulmonary ailments; watering troughs in the second period have been moved to the exterior of the confinement area, which has substantially reduced breakage and water loss, has reduced repair outlays and has improved the state of confinement unit sanitation; the rear wall of the self-feeder has been built up an additional 15 centimeters, which has reduced concentrated feed mix losses during the first period; a vibrating screen-agitator has been designed and installed in the second-period feed mix bin, which has eliminated passage of large feed particles and has reduced by 90 percent cable-plate conveyer separation; aerosol disinfection of confinement areas has been employed, cutting disinfection time from 5-6 hours to 20 minutes, plus a number of other refinements which have helped improve care of young stock at the complexes.

Implementation of measures to achieve intensification of livestock raising, employment of advanced processes and new forms of production organization, adoption of scientific advances and advanced know-how, concern for innovative initiative on the part of complex specialists and managers, and unlimited availability of coarse feeds to the calves. For the second year now concentrated feeds have been norm-dispensed in the first growing period at the Voronovo complex, which has also resulted in a substantial increase in average daily weight gain.

This complex obtained in 1978 an average daily weight gain of 990 grams in the first period and 1,063 grams in the second.

In spite of stability in obtaining average daily weight gain for all currently-operating complexes, the average finished weight per animal has increased. This attests to a decrease in the number of animals culled out prior to completion of the finishing process. The complexes remove so-called "veterinary cull" animals from the herd and deliver them to the meat-packing combine in differing numbers, with equal conditions of stock care. The Yumatovskiy complex in the Bashkir ASSR delivers 3.5 percent of the total number of head sold to the state as bull calves up to 350 kg in weight, while the Pashskiy, Voronovo, and Mir complexes have figures of 6.5-7.3 percent. Consequently, in establishing appropriate conditions for stock care and feeding, it is possible to reduce to a minimum premature removal of animals from the fattening operation. An analysis indicated that animals are delivered to the meat-packing combine early for the most part due to leg injuries, pulmonary and other diseases, caused by poor quality of gapped floors and enclosure structures, disruption of proper feeding conditions and failure to maintain an optimal microclimate, inhomogeneity of production groups, as well as excessive packing of animals in confinement spaces.

The dimensions and shapes of gapped floors and standard per-animal floor space have been revised, with these figures contained in the new technical design standards.

At many complexes production groups are formed at 400 head and more (instead of 360 as specifications call for), by closely packing animals in group confinement units (20-21 head in place of 18). This makes it possible to obtain an additional 1,000-1,200 bull calves each year and additional weight gain.

Practical experience has shown, however, that when more than 380 head are run per section, there is a sharp increase in animal injury, especially in the second period. The optimal floor space in the second period is considered to be 2.0-2.1 m^2 per head, while when a group numbers 400 head, each calf has only 1.7 m^2, or 20 percent below standard. This worsens care conditions and increases animal injuries.

The experience of currently-operating complexes has indicated that in the summer period it is advisable to utilize in feeding young stock bulk green fodder mixed with haylage and concentrated feed mixes. Utilization of green fodders makes it possible not only to replace up to 50-60 percent of haylage in the daily ration but also to achieve savings in concentrated feed. At the same time it is not recommended (All-Union
an increasing scope of socialist competition among stockmen to achieve the best labor productivity performance figures are the main factors which influence further increase in livestock production.

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LOW CONCENTRATE RATIONS FOR CATTLE DISCUSSED

Moscow ZHIVOTNOVODSTVO in Russian 3 Mar 80 pp 43-44

[Article by Professor V. M. Kulikov, Volgogradskiy SKhI [Agricultural Institute]: "Low Concentrate Rations for the Fattening of Large Horned Cattle"]

[Text] The question of the low concentrate (volumetric) type of feeding of livestock is not a new one. In 1949-1950 the VIZh [All-Union Scientific Research Institute of Livestock Breeding] conducted experiments (O. V. Garkavi, A. A. Atbash'yan, A. D. Sineshchekov, V. M. Selyanskiy) on raising calves to the age of 1.5 years on rations equal in nutrition but different in structure.

For animals raised on rations consisting of 88.3 percent volumetric and 11.7 percent concentrated feeds, the indicators of food digestibility, breathing, gas exchange, per minute volume of the heart, etc. were higher than for animals raised on rations consisting of 46 percent coarse and 54 percent concentrated feeds.

The authors drew the conclusion that by means of directional cultivation it is possible to create the desired animal type for its most useful utilization in specific economic conditions.

However, with the intensification of livestock farming and on this basis with the intensification of feeding animals with the goal of obtaining a larger amount of production, the use of concentrated feeds and rations, including during fattening, has increased in our country as well as in other countries.

It should be kept in mind that when raising and fattening cattle it is necessary to provide larger quantities of nutrients than when simply maintaining cattle. Only if this is done will there be an intensive formation of new tissue and additional deposits within the body to increase weight.

A sufficient feed ration with a specific concentration of nutrients is required for this. The ration must contain all of the nutritious elements in the necessary quantity and ratio.

This is achieved by coordinating various feeds. As a rule it is not volumetric but concentrated feed that cannot satisfy this requirement. Nevertheless, these combinations could differ according to the availability of feeds in the enterprise and their feed properties.

If we analyze the typical rations in the various zones of the country (M. F. Tomme, "Typical Rations for Large Horned Cattle, Hogs and Sheep in the Zones of the Country," Moscow, Izdatel'stvo Kolos, 1971), we will find confirmation of this. In different natural-economic conditions the proposed structure of rations for raising and fattening large horned cattle is different. Concentrated feeds are used in intensive fattening to provide 38.1-38.8 percent of the nutrients in the Lithuanian SSR; 50--in the Estonian SSR; 29-30.7 in the Ukrainian SSR; 48.8-49.8 in the southeastern part of the country; and 29.1-34.8 percent in Western Siberia.

It has been established that an animal does not require a specific amount of hay, silage, green fodder, root crops, etc., but does have a special need for energy or for total organic nutrients, digestible protein or certain amounts of various amino acids, micro- and macro-elements and vitamins. In addition, the ration must be tasty and free of harmful substances.

We know that the higher the productivity of livestock, the higher the concentration of energy (nutrients) must be in the dry substance of a ration. For calves over 4 months of age with a daily weight gain of 900-1,100 grams energy must equal 0.86-0.89 feed units per 1 kilogram of dry substance; digestible protein, depending upon age--100-120 grams; and gluten--no more than 16-24 percent.

The insufficient concentration of energy and protein in volumetric feeds as well as the shortage of cellulose in some of them limits their use. At the same time volumetric feeds vary according to these indicators. Thus, in the dry substance of potatoes and semi-sweet beets the content of feed units is approximately equal to that in grain concentrates, whereas in hay and especially in straw it is significantly less. Consequently, the share of concentrates in rations including root and tuber crops, can be much lower than in those including coarse feeds.

In putting together rations volumetric feeds must be included maximally first--hay, straw, silage, haylage. Concentrates should be utilized for balance, which is necessary to satisfy the aforementioned needs of animals regarding nutrients. The volume of concentrates will differ according to the types of feeds making up most of the ration and according to what the concentration of nutrients in the feed is. For this reason we can judge the necessary quantity of concentrates in a ration only by knowing about the specific conditions in an enterprise. Here the guaranteed quality of feeds is important because as quality decreases, so does the total nutritive value of the feed.

At the July 1978 Plenum of the CPSU Central Committee it was said that some directors of enterprises, rayons and even oblasts are not demonstrating the proper concern regarding increasing the production of hay, haylage, silage, root crops and regarding improving their quality. They try to cover the shortage of feed with concentrates, sometimes at the expense of grain from state reserves. As a result the use of grain for livestock feed is growing excessively while the use of other types of feed is being curtailed.

In recent years new methods have been developed and are being widely applied for the procurement and preparation of feeds, and in particular of dehydrated feeds. Here the vegetative mass of a plant can be used to prepare feeds good indicators in some areas (content of carotene, etc.).

Thus, 1 kilogram of grass alfalfa meal dried artificially that is generally very nutritional has over 230 milligrams of carotene and over 20 percent raw protein.

The preparation of granules and briquettes from mixtures of various feeds (straw, concentrates, grass meal and others) with protein-mineral-vitamin supplements, carbamide concentrate granules and carbamide concentrates obtained by means of the extrustion method has enabled us to produce a feed that is characterized by high feed qualities and to effectively utilize less valuable coarse feeds in addition to concentrates. We have also been able to increase the biological value of the concentrates themselves by means of additives.

All of this provides a new approach to the question of utilizing grain concentrates and allows us to increase the effectiveness of fattening and in a number of cases to decrease their proportion in rations within reasonable limits. The Volgogradskiy SKhI [Agricultural Institute] has conducted experiments that have confirmed these proposals.

The kolkhozes and sovkhozes of Volgogradskaya Oblast utilize large quantities of straw and other volumetric feeds for fattening calves. During the final period of fattening these feeds are not as readily eaten by animals, and the insufficient quantity of calories in them hinder fat deposits in the body. In connection with this research was conducted on the use of granulated feeds which animals like to eat and which contain more nutrients per unit of mass.

The experiments were set up in 1975 in the teaching-experimental enterprise of the Gornaya Polyana Institute. The granules were prepared according to the following recipe (% of mass): wheat straw--78.5; crushed barley--20; carbamide--0.9; cooking salt--0.6. For each 1 ton 35.6 grams of copper sulphate, 0.236 grams of potassium iodide and 3.5 grams of cobalt chloride were added. Each kilogram of granules contained 0.59 feed units and 49.8 grams of digestible protein.

The effectiveness of utilizing the prepared granulated feeds was studied in two groups of similar bull calves of the Simmenthal breed (12 animals per group). The experiment lasted 112 days (the basic period--90 days).

During the initial period the control bull calves each received daily 2 kilograms of wheat straw, 3 kilograms of meadow hay, 20 kilograms of corn silage, 1.5 kilograms of crushed barley, 50 grams of cooking salt. Test animals received 20 kilograms of corn silage and 7 kilograms of granules made from the aforementioned recipe. The nutritive value of rations in the groups was practically identical--10.41 to 10.10 feed units.

By the end of the fattening period the average live weight of bull calves in the control group was 457 kilograms; in the test group--470. The average daily weight gain in the control group was 1,055 grams; in the test group--1,200 grams. Meat productivity of animals was better in the test group according to the results of controlled slaughter.

In another experiment conducted in 1977 the granules were prepared according to the following recipes. Recipe number one called for (percent of mass): 99 percent--barley green mass (milky-wax stage of ripeness) and alfalfa; 1 percent--cooking salt. Recipe number two consisted of (percent of mass): 97 percent--barley green mass (milky-wax stage of ripeness) and alfalfa; 1.4 percent--cooking salt; and 1.6 percent--carbamide. One kilogram of granules contained 0.63 feed units, 80.3 grams of digestible protein, 5.56 grams of potassium; 2.17 grams of phosphorus and 27 kilograms of carotene.

The effectiveness of the prepared granules was studied at the final stage of fattening analagous bull calves of the Simmenthal breed (three groups with 10 animals in each). The average live weight of one animal at the beginning of the test at the age of 11 months was 300 kilograms. The basic fattening period lasted 95 days.

The bull calves of the first control group received 28 kilograms of green mass, 2-3 kilograms of crushed barley and 2 kilograms of straw each per day during the summer and 3 kilograms of hay, 3-3.5 kilograms of crushed barley and 18-20 kilograms of silage during the winter. The bull calves of the test groups received the same basic feed, but during the winter period instead of hay and crushed barley seed and during the summer instead of straw and crushed barley the bull calves of the second test group received 8 kilograms of granules of recipe number one; the third test group received 7.5 kilograms of granules of recipe number two each. The rations of all groups contained identical amounts of feed units--7.76-7.90.

The feeding of granulated feeds of the aforementioned composition instead of others, including grain concentrates, had a positive effect on the increase in weight. By the end of the experiment it comprised an average of 433, 455 and 463 kilograms per head in the various groups. The absolute growth of live weight for one animal was 133 kilograms, 155 and 163 kilograms.

As a result of reference slaughter it was determined that there was no basic differences in carcass output among the groups (52.2-52.7 percent). In group one 7.4 feed units, in group two--6.4 and in group three--6.1 feed units were needed for 1 kilograms of weight gain.

In Volgogradskaya Oblast barley is the basic concentrated grain feed. Let's remember that 1 kilogram of barley contains 1.13 feed units and 80 grams of digestible protein. In 1975 experiments were conducted with the goal of more effectively utilizing feeds for fattening calves.

Recipes were developed and high-protein granules of the following composition (percent of mass) were prepared: 65 percent crushed barley, 5 percent alfalfa meal, 20 percent carbamide, and 10 percent cooking salt. To each ton were added 150 grams of copper sulphate, 6 grams of potassium iodide and 15 grams of cobalt chloride.

The chemical composition of the granules was as follows (percent): moisture--9.61; protein--39.91; fat--2.28; cellulose--9.0, BEV [Nitrogen-free extractive]--31.0; and ash--8.2. One kilogram of granules contains 1.14 feed units, 380.4 grams of digestible protein, 1.2 grams of calcium, 3.3 grams of phosphorus and 1 milligram of carotene.

To determine the effectiveness of utilizing granules in fattening animals two groups of analagous bull calves of the Simmenthal breed were selected (12 animals per group) with an average live weight of 362 kilograms. In the course of 40 days the bull calves of the control group received 2 kilograms of wheat straw, 3 of meadow hay, 20 of corn silage, 2.5 of crushed barley and 50 grams of cooking salt. Animals in the test group received the same feeds, but the 0.5 kilograms of crushed barley grain were replaced by 0.5 kilograms of high-protein supplements.

In nutritive value the rations of both groups were equal and contained 10.41-10.44 feed units. The average daily weight gain in bull calves of the test group comprised 1,050 grams; in the control--825. The average live weight before slaughter of the bull calves in the control group was 457 kilograms; in the test group--466. Dressed carcass output was 55.1 and 57.5 percent respectively.

Thus, by replacing a portion of the grain with a high-protein supplement and by maintaining the same nutritive value in the rations a large increase in meat output was achieved and consequently, the expenditure of concentrates per unit of production dropped.

Deserving of a great deal of attention is a new method of utilizing grain forage crops sown in feed crop rotations--harvesting them in the phase of milky-wax ripeness of grain using the non-threshing method. It enables farmers to harvest more per unit of area and to increase the biological value of feed because of the greater content of carotene, chlorophyll and other substances in the vegetation. According to the data of our experiments, under conditions of Volgogradskaya Oblast this type of method enables farmers to harvest 3.1 quintals of feed units more of barley per hectare when the productivity is 18 quintals per hectare in comparison to traditional harvesting. Also, 114 kilograms more digestible protein and 216 grams more of carotene were also produced.

Granules prepared from barley and harvested by the non-threshing method contained (percent): moisture--10.1; protein--12.1; fat--2.4; cellulose--18.9; BEV--50.2; ash--6.3. One kilogram of granules contained 0.78 feed units, 84.7 grams of digestible protein, 27 grams of calcium, 2 grams of phosphorus and 64.1 milligrams of carotene.

In 1977 experiments were conducted on preparing and utilizing granules made from sorghum plants and corn spadixes when fattening calves.

The corn spadixes were harvested at full maturity; sorghum--at the stage of milky-wax ripeness. Recipes for preparing granules were as follows. Recipe number one (percent of mass) included: corn on the cob--95.5; carbamide--2; cooking salt--0.8; monocalciumphosphate--1.7. Recipe number two contained sorghum (complete plants)--98.1 percent; carbamide--0.9; cooking salt--0.7; and monocalciumphosphate--1.3.

According to the data of chemical analyses, 1 kilogram of granules from recipe number one contains 0.77 feed units, 50.4 grams of digestible protein, 4.39 of calcium, 1.83 grams of phosphorus; from recipe two--0.49; 34.4; 6.2; and 4.85 respectively.

The effectiveness of utilizing granulated feeds was studied in experiments with three groups of analagous bull calves (10 animals per group). During the winter the bull calves of the first control group received 3 kilograms of hay, 14 of haylage from barley, 3 kilograms of crushed barley, and 45 grams of salt. Test groups numbers two and three received the same feeds, with the exception of hay, but the crushed barley grain was replaced by 5.2 kilograms of corn on the cob or 8.2 kilograms of granules from sorghum.

At the end of the experiment the average live weight of one calf in group one was 427 kilograms, and in groups two and three--432 and 452 kilograms respectively. The average daily weight gain of control bull calves was 1,031 grams; of test calves--1,079 and 1,135 grams.

As a result of control slaughter it was seen that the quantity of muscular tissue was greater by 3.6 percent and the amount of highest quality meat by 3.3 percent in bull calves of group three as compared to group one. The dressed carcass weight for all groups was practically the same, comprising 52.4-52.9 percent.

The aforementioned results of tests attest to the possibility of partially replacing grain concentrates with specially prepared granulated feeds in the rations of calves that are being fattened.

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IMPROVEMENT OF FEED PRODUCTION FOR ANIMAL HUSBANDRY

Moscow ZHIVOTNOVODSTVO in Russian No 3, Mar 80 pp 29-31

[Article by V. F. Klyuykov, doctor of economic sciences, and V. I. Krivonogov, candidate of agricultural sciences: "Efficient Utilization of Various Feeds"]

[Text] Cattle breeding--the leading branch of animal husbandry--consumes more than 67 percent of all the feed resources, including 52 percent of the concentrated feeds, 80 percent of the coarse and juicy feeds (including silage--2 percent), more than half of the pasture feeds and 92-94 percent of all the greer mass. These figures show the importance of intensifying feed production, especially on arable land for cattle breeding. Without effective measures directed toward increasing the production of feeds and improving their quality, one can not solve the problem of changing this branch over to an industrial basis.

One of the main ways of providing for an increase in the feed potential of the farms is comprehensive mechanization of feed production, the application of progressive methods for their preparation and the preparation of grass meal, haylage, briquettes and granules. Land reclamation work and the creation of irrigated and cultivated hay fields and pastures are especially important for increasing the productivity of natural lands.

It is extremely important to eliminate the shortage of digestible protein in the rations. This causes an overexpenditure of feeds, limits the growth of the number of head and reduces the productivity of the animals. In order to solve this problem it is necessary to expand the areas planted in peas, soybeans, lupine, alfalfa, and other pulp crops, and to utilize more fully wastes from the fish, meat and dairy industry and also products of microbiological synthesis.

Progress in feed production is determined not just by the development and increased efficiency of the utilization of feed lands, the increased productivity of agricultural crops, the organization of seed growing and the introduction of highly productive strains. No less important here is the level of development of the mixed feed industry, the production of full-value feed mixtures that provide for maximum productiveness of the animals. Processing all grain forage into mixed feeds and feeding full-value mixed feeds and feed mixtures to the animals contributes in all cases to increasing productivity and improving the overall physiological condition of the animals. The production capacities of the mixed feed industry increase from year to year. Thus in 1965 15.8 million tons of mixed feeds were produced, in 1970 --23.2 million, in 1975--41.0 million, and in 1978 almost 52.0 million tons. The fulfillment of assignments under the Tenth Five-Year Plan for producing 77-81 million tons of mixed feeds and up to 4 million tons of protein-vitamin supplements will play an immense role in increasing the production of animal husbandry products.

In 1978 146 million tons of concentrated feeds were used to feed the livestock, including more than 1.5 million tons of cakes and oil-seed meal and more than 3 million tons of grass meal. Many farms prepare full-ration feed mixtures that are balanced in nutritive substances, using nitrogen and mineral supplements and phosphate compounds. In 1978 the sovkhozes and kolkhozes used more than 90,000 tons of nutritive yeast, 130,000 tons of carbamide and many other chemical substances in animal husbandry. These supplements considerably improved the ration, but they did not satisfy the full requirement of the animals for nutritive substances. Therefore the rates of increase of productivity in animal husbandry and the growth of the volumes of production of products from this branch, with a reduction in production costs per unit, will depend to a considerable degree on how the mixed feed industry provides for the processing of the grain forage that is allotted into full-value mixed feeds. In 1978 only about half of the overall expenditure of concentrates was in the form of mixed feeds.

As we know, the utilization of grain forage in the form of mixed feeds produces a great savings on grain. If all the grain feeds in the public sector were expended in the form of mixed feeds, this would produce a savings of 15-20 million tons of grain for the volume of products that is produced. But improvement of the feed base does not consist only in this. Other kinds of feeds are also of great importance. Therefore it is expedient to analyze the level of feeding of livestock in the various years (Table 1). From Table 1 it is clear that, although the level of feeding of livestock has increased, it is still far from adequate. Moreover, improvement in the feeding of the animals during the period that is analyzed was achieved mainly through feeding them concentrates, juicy feeds and straw, with a reduction in the expenditure of feeds that are traditional for ruminent animals--hay and grass.

Of the overall increase of the expenditure of feeds during the period from 1965 through 1978 (translated into feed units) which amounted to 131.1 million tons, only 80.6 million tons or 61 percent was concentrates, including 36 million tons (28 percent) which were mixed feeds. During this period the structure of the ration of the animals changed, particularly as the dairy herd (Table 2).

Table 1. Dynamics of Expenditure of Feeds Per One Conventional Head on All Categories of Farms

Feeds	1965	1970	1975	1978	1978 in % of 1965
Concentrated	5.3	7.8	8.2	9.6	181
Juicy					
including silage	33.6	33.8	34.7	40.2	120
Coarse					
including hay	13.5	11.8	11.8	13.2	98
Pasture	6.3	6.4	5.5	4.9	78
Expenditure of all kinds of feeds per 1 conventional head (quintals of feed units)	22.5	24.8	25.1	26.9	120

Table 2. Composition of Ration of Dairy Herd of Kolkhozes and Sovkhozes (According to Summary of Annual Reports)

Feeds	Expended per average annual cow (quintals of feed units)		Increase, decrease
	1965	1978	
Concentrated	4.5	10.9	+6.4
Hay	2.7	1.8	-0.9
Haylage	--	3.4	+3.4
Straw	2.5	2.5	--
Silage	6.9	6.1	-0.8
Root, tuber, melon crops	1.4	1.5	+0.1
Summer green feed	3.8	6.2	+2.4
Pasture	5.6	5.0	-0.6
Other feeds	1.1	1.1	--
Total	28.5	38.5	+10.0

As one can see from Table 2, more concentrates were expended for each dairy cow in 1978 than in 1965. Additionally there was a reduction in the expenditure of hay, silage and pasture feeds. True, in recent years the farms have arranged production of haylage, but its quality is not high enough yet. Summer feeds are less expensive and, as one can derive from the table, their proportion in the cows' ration increased. Because of field feeds the expenditure of green feeds per cow increased from 3.8 quintals of feed units to 6.2 quintals or by 63 percent, and the expenditure of pasture feed decreased by 11 percent. A feed unit of feed produced in a crop rotation and used under the conditions of summer stabling maintenance costs several times more than when the livestock are kept in the pastures. Thus according to data of the kolkhozes and sovkhozes of the USSR Ministry of Agriculture, during 1977-1978 the cost of one quintal of feed units in green feed amounted to 4 rubles 74 kopeks, and in pasture feed--67 kopeks.

Concentrated feeds, whose proportion in the annual ration of dairy cattle increased, significantly improved the feeding of animals and increased their productivity. But concentrates in unprepared form, when they are not enriched with protein and vitamin supplements, do not contain enough calcium, vitamins, biologically active substances and other vitally important elements of nutrition. For example, in 1978 in the annual ration of the cows on the kolkhozes and sovkhozes the concentrates amounted to 10.9 quintals of feed units and mixed feeds made up only 3.6 quintals of feed units. As a result, the ration was inadequately balanced in nutritive and mineral substances.

From data of annual reports of the kolkhozes of the RSFSR during 1978 we calculated the requirement of one dairy cow for basic nutritive substances and their actual expenditure (Table 3).

Table 3. Expenditures of Nutritive Substances for Dairy Herd in RSFSR in 1978 (annual average per cow with milk yield of 2,253 kilograms of milk and live mass of 400 kilograms)

Elements of Nutrition	Expenditures according to norm	Total for year actually expended	Difference, compared to norm
Feed units (quintals)	31.4	35.9	+4.5
Digestible protein (kilograms)	330	310	-20
Contained in 1 feed unit			
protein (grams)	105	86	-19
calcium (grams)	20.9	24.5	+3.6
phosphorus (kilograms)	14.4	11.2	-3.2

As one can see from Table 3, the limiting elements in the feeding of dairy cattle are protein and phosphorus. It is difficult to overestimate the importance of these nutritive elements in the exchange of substances and the fomration of products. When there is a shortage of them the overall exchange and also the mineral exchange in the organism are disturbed, the milk yields decrease and feeds are expended inefficiently, as a result of which there is an overexpenditure of them. Thus according to the data of this same table, a shortage of protein and phosphorus caused a significant overexpenditure of feeds (4.5 quintals of feed units) on an annual average for each cow. If we turn our attention to the fact that a similar phenomenon is observed in the dairy cattle raising on the sovkhozes, we can see that in 1978, because of unbalanced rations on farms of the public sector of the Russian Federation, the overexpenditure of feeds in milk production amounted to about 5 million tons of feed units.

The overexpenditure of feeds takes place mainly during the winter stabling period when there is an especially critical shortage not only of protein and phosphorus, but also of carotin. For each feed unit during this time the cows receive only 85-90 grams of protein and about two feed units are expended to obtain one kilogram of milk. The use of nitrogen supplements contributes to reducing the shortage of protein in the ration.

Raising the overall level of feeding of the livestock, primarily through increasing the amoung of concentrated feeds in the ration, undoubtedly exerted an influence on increasing the milk yields of the cows and the growth of the animals. But this did not contribute to improving the utilization of the breeding stock or to increasing the return on the feeds (Table 4).

Table 4. Expenditure of Feeds per Unit of Growth and Milk and Yield of Young on Kolkhozes and Sovkhozes of RSFSR

Indicator	1965	1970	1978
Expenditures of feeds per 1 quintal (quintals of feed units):			
milk	1.5	1.4	1.5
growth of large horned cattle	11.8	11.5	12.3
Calves obtained from 100 cows and calves older than 2 years	88	83	80

From Table 4 one can see that during 13 years the expenditure of feed per one quintal of milk remained at the same level, and the expenditure of feed per unit of growth increased by 4.2 percent and from 100 cows and calves older than 2 years, 8 fewer calves were obtained.

At the same time, on farms on a number of oblasts, krays and republics where the level of feeding was raised and the ratio of feeds was closer to the optimum, the increase in productivity of the livestock was accompanied by better return from the feed. Thus on the sovkhozes of the Komi ASSR, with an overall increase in expenditures in the ration of dairy cows in 1978 of 0.6 quintals of feed units per cow and a reduction of the expenditure of concentrates by 0.3 quintals of feed units, the average yield as compared to 1978 increased by 34 kilograms and amounted to 2,843 kilograms; and the expenditure of feed of the production of one quintal of milk did not increase. In Orenburgskaya Oblast, with an overall rise in the level of feeding of dairy cows by 2.4 quintals of feed units (including concentrates--0.9 quintals of feed units), the milk yield of the cows increased by 234 kilograms while expenditures of feeds per unit of output remained the same. In this same oblast when raising and fattening young cattle, expenditures of feeds in the ration increased by 2.6 quintals of feed units per head (including concentrates--1.5 quintals), the expenditure of feeds per one quintal of weight gain decreased by 0.4 quintals of feed units, but the output of meat per head increased by 19 kilograms. In Krasnodarskiy

Kray, with a rise in the level of feeding of 2.6 quintals of feed units per head of young cattle being raised and fed (including 1.5 quintals of feed units of concentrates), expenditures of feeds per quintal of growth decreased by 0.5 quintals of feed units with an increase in the output of meat of 28 kilograms per head. A similar situation can be found on a number of farms of other oblasts, krays and autonomous republics of the RFSSR where the level of feeding is being raised not so much through concentrates as through coarse, juicy and green feeds.

According to data of the All Union Scientific Research Institute of Physiology, Biochemistry and Nutrition of Agricultural Animals, as a result of the reduction in the amount of hay in the ration of dairy cattle and the increase in the proportion of grain feeds, the fat content of the milk decreases and the reproductive capacity of the cows deteriorates. The essence of this phenomenon consists in that in the blood of the animals there is a decrease in the overall circulation of acetate of beta-hydroxy butyric acid, phospholipids and other products of vital activity, there appears a shortage of fat soluable vitamins in the organisms and the exchange of substances is disturbed. The struggle against these negative phenomena consists in improving the composition of the ration and increasing the quantity and improving the quality of hay, haylage and silage.

A rise in the level of feeding of the animals, mainly through grain forage, does not solve the problem of the protein shortage since, in terms of the quantity of protein per feed unit, grain forage is no better than other feeds. Thus in grain feeds per one quintal of feed units there are 75-80 grams of protein, in silage--80-85 grams, in green feeds--130-135 grams and in good hay--140-150 grams. If, for example, in the livestock ration the two feed units contained in the concentrates are replaced with green feeds, silage and hay with a corresponding quantity of nutritional substances, with the same ration with the same level of feeding, there is a rise in the level of protein, carotin and calcium per feed unit. Improvement of the ration will contribute to increasing the productivity of the cows and economizing in production.

Full-ration mixed feeds exert especially great influence on the productivity and the return from feeds. Thus with approximately equal expenditure of all feeds per one conventional head and an increase in the proportion of mixed feed in the overall quantity of concentrates from 23 to 73 percent, expenditures of feeds per unit of output decreased per one quintal of milk by more than 5 percent, per one quintal of growth of large horned cattle--by 11 percent, and per one quintal of growth of hogs--by 20 percent.

The positive effects of full-ration feeding of livestock on increasing their productivity are apparent from such examples. In 1978 the expenditure of feeds for the dairy herd on the sovkhozes of the Mariyskaya ASSR increased as compared to 1965. While in 1965 with all feeds a total of 28 quintals of feed units were expended per cow, in 1978 it was 48.3 quintals of feed units. The amount of protein in one feed unit for these years were 79 and

88 grams, respectively, and in the annual ration each cow received, respectively, 16 and 27 kilograms of calcium, 8 and 14 kilograms of phosphorus and 172 and 211 grams of carotin. This made it possible to increase the average milk yield per cow from 1,583 to 2,813 kilograms (an increase of 1,230 kilograms). Thus a rise in the level of feeding of 55 percent brought about an increase in productivity of 78 percent. The cows' rations were improved by increasing the proportions not only of concentrates, but also of silage, haylage and green feeds. This direction for the development of the feed base basically corresponds to the physiological requirements of the dairy herd, which also brought about a significant increase in the productivity of the animals.

On the sovkhozes of Leningrad Oblast the rise in the level of feeding took place mainly through utilizing mixed feeds and also green feeds, especially pasture feeds. As a result of the increase in the value of the ration, the milk yield of the cows increased from 3,085 to 3,455 kilograms.

Practice and scientific data show that the same quantity of output can be obtained with a balanced ration by combining various kinds of feeds. Here we have in mind the fact that the shortage of certain kinds of feeds can be made up for by the merits of other kinds of feeds within certain limits established by the science of feeding animals. Consequently, a shortage of concentrated feeds can be eliminated, on the one hand, by increasing the production of full-value mixed feeds and, on the other, by increasing the quantity of juicy, coarse and green feeds.

An analysis of the feed base of animal husbandry shows that a considerable increase in the utilization of concentrates does not solve the problem of increasing the milk productivity of cattle and reducing production costs. It is necessary to take all measures for overfulfilling the assignments for producing and improving the utilization of feeds of all kinds, especially hay and juicy and green feeds.

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PURE BREEDING OF AKHAL-TEKE HORSE BREED URGED

Ashkhabad SEL'SKOYE KHOZYAYSTVO TURKMENISTANA in Russian No 6, Jun 79 pp 13-14

/Article by M. D. Cherkezova, zootechnician at the Ashkhabad Race Course, honored zootechnician of the Turkmen SSR, and T. N. Ryanova, senior scientific worker at the All-Union Scientific Research Institute of Horse Breeding, candidate of biological sciences: "Problems of Improving the Akhal-Teke Breed of Horses"/

/Text/ The Akhal-Teke breed of horses is the oldest in the world. It had a great effect on the development of horse breeding and on the creation of a number of horse breeds both in Europe and in Asia.

This horse is well adapted to life under the severe conditions of arid deserts. It is energetic, daring and devoted to its master. It has a strong and dry constitution, light movements not tiring for the rider at all paces, endurance, flexibility, jumping ability, the capacity to quickly regain strength after strenuous work, nobility of external forms and a rare diversity of colors.

All these remarkable qualities of the Akhal-Teke breed at the present stage in the development of horse breeding make it possible to utilize them for sport and pleasure purposes.

The Akhal-Teke horse is a unique creation of nature and a living memorial to the collective work of many generations of people. The history of the emergence of this breed goes back many centuries. Preservation and further improvement of its unique qualities are a matter of honor for Soviet zootechnicians and horse breeders.

The value and uniqueness of this breed are indisputable. In the last few years the interest in it has increased among horse sportsmen both in our country and abroad.

In the republic at present there are 1,350 horses of the Akhal-Teke breed together with young stock born in 1978, including 400 purebred specimens in a producing group, among them 350 mares.

The following are the main farms breeding Akhal-Teke horses in our country: the Komsomol Stud Farm in the Turkmen SSR, the Lugovskiy Stud Farm in the Kazakh SSR, the Terskiy Stud Farm in Stavropol'skiy Kray, the pedigree department of the Dagestanskiy Sovkhoz in the Dagestanskaya ASSR and the Maryyskaya State Stable of the Turkmen SSR. The following new pedigree farms have been organized in the last 2 years: the pedigree department of the Chagorta Sovkhoz in the Kalmytskaya ASSR and the department of Akhal-Teke horses on the Degeres Stud Farm in the Kazakh SSR.

In connection with the development throughout the world of the movement for environmental protection and for the preservation of the gene pool of a number of valuable local breeds of livestock and species of plants work on the preservation of the gene pool of the Akhal-Teke breed acquires great and urgent importance. Thus, the Society of Horsemen and Friends of the Akhal-Teke Horse was organized in Munich in 1974.

The long-term plan for pedigree breeding work with this breed envisages the production of an Akhal-Teke horse of a pronounced purebred type, which would have the correct exterior, be sufficiently high and retain the characteristics of color, movements and capacity for work.

An experiment in the introductory crossing of Akhal-Teke horses with horses of the thoroughbred saddle breed was conducted from 1899 through 1932. The result of this crossing was analyzed in the first plan for pedigree work with the breed (1938) by Ye. M. Yershova and M. I. Belonogov. Then it was concluded that the Akhal-Teke breed of horses should be bred only by the pure breeding method and that a further inflow of the blood of the thoroughbred saddle breed was not advisable, because the crossbreeds lost the adaptive qualities and characteristic features of the breed. The practical experience of the Dzhambul Stud Farm showed that the pure breeding of the Akhal-Teke horse under the conditions of sound feeding and regular training produced good results. The horses of that farm were big and bony and had a high capacity for work. Many of them had a tremendous effect on an improvement of the breed as a whole (Skak, Yerkus, Fed and others). Therefore, the first and all subsequent plans for pedigree work with this unique breed were directed only toward pure breeding.

In the last few years the chase after winning in horse races resulted in a secret and obvious inflow of the blood of the thoroughbred saddle breed. An analysis of the quality of the crossbred horses obtained in the last 10 to 15 years fully confirmed the conclusions drawn earlier by Yershova and Belonogov.

A loss of the gene pool of this ancient breed, which has the most valuable qualities, will do irreparable and irrevocable damage to all horse breeding. The prospects for improving the breed at the present stage in the development of horse breeding lie precisely in the preservation of the unique type of this breed, correction of exterior shortcomings and increase in measuring indicators, as well as in the development of mass equestrian sport and tourism. The method of pure breeding is the only correct and necessary method of breeding the horses of this breed. Participation in tests, especially with traditional prizes, together with purebred Akhal-Teke horses, of horses of an unestablished or doubtful origin with a fraction of blood of the thoroughbred saddle breed contradicts the main condition for the preservation of the gene pool--the method of pure breeding--and greatly lowers the possibilities of uncovering the capacity of purebred Akhal-Teke horses for work, which ultimately has a negative effect on the rates of improvement of this breed.

Improving the conditions of keeping and breeding horses is another important aspect of the work with this breed. This problem has also been observed from the time of preparation of the first plan for pedigree work with this breed and has been noted during all subsequent plans. At present the conditions of keeping and breeding Akhal-Teke horses are also unsatisfactory everywhere, which, to be sure, has a negative effect on the growth and development of young stock.

The attitude toward the Akhal-Teke horse on the Kolkhoz imeni Sverdlov in Ashkhabadskiy Rayon is beyond any criticism. Such valuable Akhal-Teke mares as Myul'k, Maysa, Maya and Akcha are in an emaciated state. The young stock on this farm is small and underdeveloped. The attitude toward pedigree horses on the Kolkhoz imeni M. Gor'kiy in Geoktepinskiy Rayon and on the Mir Kolkhoz in Ashkhabadskiy Rayon is not better. On many kolkhozes (Mir and imeni M. Gor'kiy in Geok-Tepinskiy Rayon and imeni Sverdlov and Mir in Ashkhabadskiy Rayon) pedigree mares are used in the grazing of large-horned cattle and, as a result of the irresponsible attitude of shepherds toward these horses, at best the mares do not foal for several years and at the worst, these horses die.

A stud breed of horses should not be kept under extensive conditions. Although the Akhal-Teke horse is adapted to the severe conditions of deserts, it requires thoughtful care and individual feeding during breeding, because long ago it was never a herd horse and was bred under farm conditions.

The measures planned in the republic on the basis of the decree dated 26 January 1979 of the Central Committee of the Communist Party of Turkmenistan and the Turkmen SSR Council of Ministers "On Improving Work in Horse Breeding and on Measures for the Development of This Sector in the Republic" make it possible to hope that a proper fodder base will be established in the basic zone of the development of Akhal-Teke horses, horses will be provided with barns and grazing grounds and the reconstruction of the Ashkhabad Race Course will make it possible to carry out the training and tests of young stock at a higher level.

To execute the decree of the Central Committee of the Communist Party of the republic and to preserve the unique gene pool of the oldest horse breed in the world, the following measures are necessary:

only pure breeding of the horses of this breed;

shows and inspections should be held at the race course and the most typical and well-developed animals should be given valuable prizes;

only purebred and typical representatives of this breed should be allowed to participate in tests with traditional prizes;

horses of the Akhal-Teke breed should be kept and bred in accordance with the techniques of breeding highly valuable horses of the thoroughbred saddle and Arabian breeds;

the sale of Akhal-Teke horses at international auctions should be strictly controlled in order to prevent the loss of the most valuable gene pool;

efficient performance of pedigree breeding work: evaluation of stallions and mares according to the quality of offspring, work with new and disappearing lines and mare families and fulfillment of the directives of the council on pedigree work with the breed on the distribution of stallions and of the recommendations of the Scientific Research Institute of Horse Breeding for the selection of mares for stallions; exchange of pedigree material among leading farms.

The fulfillment of all these measures will make it possible to successfully preserve and improve this unique breed of horses in the republic.

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LIVESTOCK

RSFSR MINISTRY OF AGRICULTURE URGES ENLARGING HORSE HERD

Sverdlovsk URAL'SKIYE NIVY in Russian No 9, Sep 79 p 50

[Article: "The Stock of Horses Must Be Increased"]

[Text] In the last few years the agricultural bodies of many autonomous republics, krays and oblasts have lessened their attention to horse breeding without justification. In 1976-1978 the horse population on kolkhozes and sovkhozes in a number of oblasts was reduced, including on farms in Sverdlovskaya Oblast, by 16 percent.

The unsatisfactory state of the reproduction and preservation of the stock of horses and the serious shortcomings in their utilization are the basic reasons for this. As a result, the needs of many kolkhozes and sovkhozes for horses, as well as the needs of equestrian sport and export, are not met fully and raw materials for the food, medical and biological industries are not allocated in sufficient volumes.

Kolkhozes and sovkhozes in many oblasts, krays and autonomous republics do not fulfill the requirements for the keeping and feeding of horses and have lessened their attention to their utilization in intrafarm operations and in the servicing of the private subsidiary farms of the rural population.

The All-Russian Association of Stud Farms, many ministries of agriculture of the autonomous republics and production administrations of agriculture do not sufficiently control and organize the fllfillment of the order of the RSFSR Ministry of Agriculture for measures to improve the reproduction and quality of horses on kolkhozes and sovkhozes.

The RSFSR Ministry of Agriculture made it incumbent upon main administrations, administrations of the ministry, all-Russian production and scientific production associations, ministries of agriculture of autonomous republics and production administrations of agriculture of kray and oblast executive committees:

to examine the state of development of horse breeding in every rayon and on every kolkhoz and sovkhoz and to take measures to increase the stock of horses and to improve the reproduction and preservation of the horse population.

to organize a fuller utilization of the pedigree stallions of kolkhozes, sovkhozes, state stud stables and stud farms, to ensure the insemination of all mares and to sell for meat only mares unsuitable for reproduction and discarded in accordance with the established procedure;

to ensure a significant improvement in the utilization of horses in agricultural, transport and other operations; to take measures to provide kolkhozes and sovkhozes with harnesses, transport facilities and horse equipment;

to improve the feeding and keeping of horses; during 1979-1981 to ensure the certification and branding of work horses of all ages; to carry out the necessary reconstruction and major repairs of stables.

The ministries of agriculture of the Buryatskaya, Dagestanskaya, Kabardino-Balkarskaya, Kalmytskaya, Severo-Osetinskaya, Tuvinskaya, Checheno-Ingushskaya and Yakutskaya autonomous republics and the production administrations of agriculture of the Altayskiy and Krasnoyarskiy kray executive committees and of the Astrakhanskaya, Orenburgskaya, Tyumenskaya, Chitinskaya, Adygeyskaya and Karachayevo-Cherkesskaya oblast executive committees must take the necessary measures for an accelerated development of horse breeding for meat by increasing the number of droving horses, raising the proportion of mares in the herd structure, creating large stud farms and stud sovkhozes and organizing intensive pasture and barn fattening before delivering young commodity stock and discarded mature horses for meat.

The production administrations of agriculture should establish systematic control over the state of development of horse breeding.

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SUCCESSFUL PROTECTION OF HORSES AGAINST INSECTS REPORTED

Sverdlovsk URAL'SKIYE NIVY in Russian No 4, Apr 80 p 56

/Article by Yu. Rastegayev, senior scientific worker at VNIIVEA, candidate of veterinary sciences: "Protection Against Blood Sucking Flies"/

/Text/ Blood sucking flies, in particular horseflies--carriers of the causative agents of tularemia, trypanosomiasis, brucellosis and other diseases--do great damage to horse breeding. Creolin, lysol, a lysol and turpentine mixture, hexachloran, polychloropinene and other preparations are used for the protection of horses against insects. However, these agents are not sufficiently effective. Therefore, the experiments conducted on the Shablykinskiy Sovkhoz of the Tyumen' Skotoprom Trust deserve attention. In the first case an experiment was conducted on 29 work horses. From 11 to 22 treatments at intervals of 3 to 5 days were given during the summer. A mixture of a repellent (3 percent of a benzimine emulsion), an insecticide (0.5 percent of an alkali solution of Trichlorfon) and the OP-7 emulsifier was applied in the amount of 1 to 1.2 liters per horse, on the average, by small drop spraying. The animals were treated in an enclosure 40 meters long and 15 meters wide from the special DUK and LSD machines. Thus, it was possible to protect horses against a mass attack by horseflies for 3 to 5 days.

People worked on the horses, observing how the mixture protected the animals. On those days the temperature reached +25 to 30 degrees and the activity of horseflies was high. During the experiments there were 123 horsefly attacks on all the animals. Even 96 hours after the application of the mixture single horseflies settled on the experimental animals. However, the control animals were literally covered with insects. Satisfactory results were also obtained from the application of these preparations when the animals were protected against mosquitos. The emulsions did not produce a reaction in the skin and mucous membrane. Disturbances in the general state of the animals were not noted during a clinical examination.

In the second case the preparations were tested on pastures. An experimental group of animals (45 head) was treated with a mixture of a benzimine emulsion and an alkali solution of Trichlorfon during 3 months in the summer. A herd of 37 head served as control. Horses used the herbage of grazing grounds, not receiving additional additives. The weight gain served as the indicator of the effectiveness of treatments. In the horses subjected to treatment the average daily weight gain during 3 months was 140 grams higher as compared with the animals of the control group. Treatment with the repellent in a mixture with the insecticide--an alkali solution of Trichlorfon--sharply lowered the affection of animals with the larvae of common botflies. When 26 horses were slaughtered, one horse was affected with gastrofilosis in the experimental group and all 13 horses, in the control group.

Protection of horses against blood sucking flies with a mixture of a benzimine repellent emulsion and an insecticide (an alkali solution of Trichlorfon) contributes to normal work on horses and to good fattening and leads to a sharp reduction in the affection with the larvae of common botflies.

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LIVESTOCK

BRIEFS

CHERKASSKAYA OBLAST LIVESTOCK, DAIRY--Cherkasskaya Oblast is today among those which sell the highest weight large horned cattle to the state. In 1979 the average sale weight [sredniy sdatochnyy ves] here reached 420 kg--approximately 60 kg more than the average for the republic. Almost two-thirds of the cattle were sold with a higher degree of fatness....The people of Cherkasskaya Oblast however consider that their feed problem is far from being solved completely. The productivity of the dairy herd in the oblast has dropped in comparison with last year. In order to make up for what has been lost they have set themselves the task this year of gathering 40 quintals of feed units per hectare. [Excerpts] [Kiev PRAVDA UKRAINY in Russian 26 Apr 80 p 2]

MILK PRODUCTION DOWN--A sharp drop in milk production has been observed at enterprises of the Republic Council of Kolkhozes. Since the beginning of the year they have received 3,700 tons of milk less than last year, and the milk yield from each cow has dropped by 43 kg. [An accompanying graph puts milk production from the Council of Kolkhozes at 98 percent of 1979 production.] [Excerpts] [Kishinev SOVETSKAYA MOLDAVIYA in Russian 26 Apr 80 p 2

LATVIAN DAIRY PRODUCTION INCREASED--The dairy farms of kolkhozes and sovkhozes in the republic, despite the fact that the cold spring held up the growth of the grasses, in several localities cows are beginning to go out to pasture. Milk yields continue to grow and have already passed the average level for last year. [An accompanying graph puts the milk yield for Latvia at 8 kg per cow per day.] [Excerpt] [Riga SOVETSKAYA LATVIYA in Russian 14 May 80 p 1]

LATVIAN DAIRY PRODUCTION DISCUSSED--Cattle went out to pasture in all regions of the republic in the second 10 day period in May. This had a positive effect in increasing milk yields. [An accompanying graph puts the milk yield for Latvia at 8.8 kg per cow per day.] [Excerpts] [Riga SOVETSKAYA LATVIYA in Russian 23 May 80 p 1]

LATE WINTER MEAT, DAIRY--The present wintering over period has been a difficult one on the livestock farms. Last year's drought did not permit many enterprises to establish a firm feed base. This, naturally, complicates the maintaining of livestock, the struggle for complete preservation of young stock. None the less cattle and poultry sales for January and February increased by 9 percent and milk sales by 1 percent in comparison with the corresponding period in 1979. The number of head in the mother herd of cattle and swine also grew. However one should not flatter oneself with the results attained. The milk yield per cow for the comparable period fell by 11 kg, the average daily weight gain in large horned cattle, by 72 grams. Therefore the workers in the countryside as before have no more important task than the successful completion of the wintering over period. Now the question of all questions concerns holding out, preserving the newly born offspring and getting the necessary volume of livestock production....[Excerpt] [Minsk SEL'SKAYA GAZETA in Russian 23 Mar 80 p 1]

DROVING HORSE BREEDING--The article "Yakutiya's Herds of Horses" was published in the issue of the SEL'SKAYA ZHIZN' newspaper of 4 March. It correctly reflected the role and place of horse breeding in the agricultural production of the Yakutskaya ASSR and the tasks and trend in work for the further development of droving horse breeding in the republic. The board of the Yakutskaya ASSR Ministry of Agriculture approved the measures for the development of horse breeding. The stock of horses on the farms of the autonomous republic should increase to 185,000 in the next few years. It was decided to hold an all-Union seminar and a thematic exhibition of productive droving horse breeding in the city of Yakutsk in June of this year. /Text/ /Moscow SEL'SKAYA ZHIZN' in Russian 31 May 80 p 2/ 11,439

CSO: 1824

PROSPECTS FOR FURTHER DEVELOPMENT OF CROP FARMING IN NORTH CAUCASUS

Krasnodar SEL'SKIYE ZORI in Russian No 3, Mar 80 pp 5-9

[Article by L. Florent'yev, RSFSR Minister of Agriculture, doctor of economic sciences: "Accelerated Growth and Stability for Crop Farming in the North Caucasus"]

[Text] Speaking at the November 1979 Plenum of the CPSU Central Committee, General Secretary of the CPSU Central Committee, Chairman of the Presidium of the USSR Supreme Soviet, Comrade L. I. Brezhnev described insuring uninterrupted supply and production of a sufficient amount of high-quality food products in a broad assortment as one of the most important challenges arising from the party policy of improving the well-being of the working people. Following its agrarian policy the party is doing everything possible to consistently change agriculture into a highly developed sector of the economy, to intensify agricultural production. The significant strengthening of the material-technical base of the kolkhozes and sovkhozes has given agricultural production greater stability and productivity and made it possible to overcome the caprices of nature with fewer costs.

This is vividly demonstrated by the major positive changes that have been made in the development of agriculture in the North Caucasus. This vast agricultural region plays a large part in the agriculture of the country and of the Russian Federation. In the first four years of the 10th Five-Year Plan it accounted for 22 percent of state grain purchases in our republic, which included 77 percent of the rice, 99 percent of the corn, 29 percent of sugar beets, 54 percent of sunflower, 27 percent of vegetables, 63 percent of fruit and berries, 14 percent of meat, and 10 percent of the milk.

The gross harvests and yield of grain and other crops have risen noticeably at kolkhozes and sovkhozes of the zone. The structure of planted areas has improved and more new, highly productive grain varieties are being planted. The application of fertilizer has increased and progressive systems of soil tillage have found universal application. Field jobs are now done better, harvest time has been reduced, and the sophistication of farming in the broadest sense of the word has improved.

The average annual gross grain harvest in 1976-1979 was 50 percent greater than in the Seventh Five-Year Plan preceding the March 1965 Plenum of the CPSU Central Committee. The major rice growing sector has essentially been created from nothing. Suffice it to say that rice production in the North Caucasus has averaged 859,000 tons a year since the start of the current five-year plan as compared to 162,000 tons per year in 1961-1965. Harvests of vegetables, sugar beets, oil, industrial, and other crops have also increased.

Within the zone, Krasnodarskiy Kray makes the largest contribution to national grain resources. The farms of this region produced 52 percent more grain in 1976-1979 than in the Seventh Five-Year Plan. The other regions increased gross grain harvest by 12-49 percent. In the same time the production of sunflower rose 18 percent in the Kuban', 26 percent in the Don region, and 17 percent in Severo-Osetinskaya ASSR. The harvest of oil crops was smaller in the other regions.

Krasnodarskiy and Stavropol'skiy krays and Rostovskaya Oblast achieved the best results in vegetable farming. The kolkhozes and sovkhozes of the autonomous republics of the North Caucasus also made good progress.

All the regions of the zone substantially increased the production of fruit and berries. Krasnodarskiy and Stavropol'skiy krays, Rostovskaya Oblast, and Kabardino-Balkarskaya ASSR were especially outstanding in this sector.

As for grape growing, we must note the major work that has been done and is now underway in the Dagestanskaya ASSR and the Checheno-Ingushkaya, Severo-Osetinskaya, and Kabardino-Balkarskaya autonomous republics.

Despite the growth in average annual production of crop output, however, production figures still fluctuate significantly for particular years. Gross grain harvests dropped off especially severely as the result of the droughts in 1969, 1972, 1975, and 1979.

Harvest instability is usually explained by bad weather conditions. But it is not just a matter of weather. At a zonal science-production conference on raising the efficiency and stability of crop farming in the North Caucasus, held recently in Stavropol', many quite persuasive examples were given to show that the impact of unfavorable weather factors is less and the yield is greater in those regions and at those kolkhozes and sovkhozes where the level of farming sophistication is higher.

Prominent scientists, specialists and organizers from kolkhozes and sovkhozes, and outstanding experts in grain and other branches of crop farming participated in the work of the conference. Participants at the congress discussed the key issues of further development of agriculture, raising the productivity of the land and soil fertility and insuring growth in the production of grain, feed, and other products, in a thorough and qualified manner, showing great concern not only for current but also more remote future problems of crop farming with due regard for contemporary scientific advances and progressive know-how. This is very important because the potential of agricultural science in the North Caucasus in quite significant, and progressive know-how represents a priceless asset.

The conference worked out recommendations on raising the efficiency and stability of crop farming in the region. These recommendations should be used as the basis for concrete steps to insure maximum output from fields in every region and at every farm.

TABLE

Goals of the Concluding Year

Krasnodarskiy Kray

Grain:

Yield	37-38 Quin/Ha
Gross Harvest	9.5-10 Million Tons
In Above, Rice	1 Million Tons
Sale to State	4,360,000 Tons

Strong and valuable wheats: raise their proportion in the total volume of state wheat purchases to 90 percent.

Rostovskaya Oblast

Grain:

Yield	At Least 26 Quin/Ha
Gross Harvest	9 Million Tons
In Above, Corn	1 Million Tons
Sale to State	4 Million Tons
In Above, Strong and Valuable Wheats	At Least 2 Million Tons

Stavropol'skiy Kray

Grain:

Yield	At Least 24 Quin/Ha
Gross Harvest	4.6 Million Tons
Sale to State	1.9 Million Tons
In Above, Strong and Valuable Wheats	1 Million Tons

(Table continued next page)

(Table continued)

Severo-Osetinskaya ASSR

Grain:	
Yield	29 Quin/Ha
In Above, Corn	34 5 Quin/Ha
Sale to State	At Least 152,000 Tons
In Above, Corn	93,000 Tons

Dagestanskaya ASSR

Grain:	
Yield	23-25 Quin/Ha
In Above, Rice	40 Quin/Ha
Gross Harvest	520,000-530,000 Tons
In Above, Rice	100,000-105,000 Tons
In Above, Corn	50,000 Tons
Sale to State	100,000 Tons

Kabardino-Balkarskaya ASSR

Grain:	
Yield	33 Quin/Ha
In Above, Corn	48 Quin/Ha
Gross Harvest	580,000-600,000 Tons
In Above, Corn	320,000 Tons
Sale to State	230,000 Tons
In Above, Corn	165,000 Tons

All wheat sold will meet high conditions; 90 percent of corn will be hybrid and varietal.

Checheno-Ingushskaya ASSR

Yield of Grain Crops	20 Quin/Ha
Sale to State:	
Grain	150,000 Tons
Sugar Beets	195,000 Tons
Vegetables	145,000 Tons
Grapes	90,000 Tons

What are the principal conclusions that the members of the conference reached? What do they recommend to accelerate the growth of production of grain and other crop products? How can the stability and efficiency of the sector be raised? Needless to say, the main line of action is further intensification of grain growing and other crop sectors. This is significantly facilitated by the steps being taken by the party and state to increase the production of mineral fertilizer and modern agriculture machinery. The 11th Five-Year Plan will be the Five-Year Plan of chemicalization of grain growing and feed production, a time when the principal regions of commodity grain production receive power-packed and highly productive equipment and more effective mineral fertilizers and plant protection agents, a time when capital investment is redirected in favor of the crop farming sectors.

Under these conditions the responsibility of kolkhoz and sovkhoz employees, specialists and scientists, and workers at agricultural agencies for insuring a significant rise in farming sophistication and soil fertility for the stronger material-technical base of agriculture will increase sharply. A good example in this respect is being set by many farms in the Kuban', Stavropol'skiy Kray, Don region, Kabardino-Balkarskaya and Severo-Osetinskaya autonomous republics, and other regions that have joined the socialist competition to get maximum yields of agricultural crops.

Plant breeding and seed raising are considered especially important in securing yield stability. Through the efforts of scientists numerous new intensive-type varieties of winter wheat, corn, and barley have been developed here. They are capable of producing 50-60 and more quintals of grain per hectare under production conditions, while corn on irrigated land can produce 100-120 or more quintals per hectare. But this potential capacity of the new varieties and hybrids is not being used well because they produce a full return only in a setting of highly sophisticated farming practices and strict compliance with varietal farming techniques. This is not done in many regions and grain crops continue to be raised according to the old technology used for extensive varieties.

Work must be stepped up on extensive introduction of new highly productive varieties and accelerated reproduction of them, making use of the positive experience of plant breeders and farms in Rostovskaya Oblast and other regions. There they did not wait for a decision on regionalization but began accumulating a significant amount of seed at plant breeding institutions and kolkhozes and sovkhozes immediately after the competitive tests were made. This makes it possible to put new varieties on to large areas quickly.

Seed growing for perennial grasses, in particular alfalfa, must receive greater attention. Many scientific institutions do not fulfill their plans for sale of high-reproduction grass seeds. Construction of comprehensive grain seed processing and storage points is going poorly in the zones. Nine such facilities were to be put into operation in the Kuban' in the five-year plan but only one has been; in Stavropol'skiy Kray three of six were launched, while in the Don region it was two of seven, and not a single such operation has begun in the Kabardino-Balkarskaya, Severo-Osetinskaya, and Checheno-Ingushskaya autonomous republics. Only the Dagestanskaya ASSR has fulfilled the plan for this construction.

The ministry gives full support to the proposals of scientists and production workers concerning more active introduction of the grain-fallow-row crop system of farming in the arid steppe regions and increasing the area of fallow land to scientifically substantiated dimensions. Of course, we will not determine the area of fallow land for each farm and region at the ministry; this is the job of the local agricultural agencies, scientists, specialists, and the agronomic service at the rayons and farms. I would like to stress, however, that the work being done at the kolkhozes and sovkhozes to improve the crop farming system, to incorporate correct crop rotations, and to expand fallow land in the arid regions must be carried out gradually and not just by reducing the area of grain crops. In this process it is essential to insure timely and high-quality tilling of fallow fields and application of large doses of organic fertilizer to get stable growth in grain production per hectare of arable land.

This is not being given proper consideration everywhere. Many farms of the zone do not plow more than 10-15 percent of the fallow land in the fall. Then in the spring some still do not plow it on time. For example, with the 1979 harvest about 60,000 hectares or 13 percent of the fallow area in Rostovskaya Oblast was plowed late in the spring (after 15 May). In Dagestanskaya ASSR 70 percent of the fallow land was plowed at this time and in Severo-Osetinskaya ASSR just 20 percent was. One cannot help wondering who needs such "clean fallow," which has lost its value in the fight against weeds and pests and elimination of infectious disease beginnings? These fields are often "weed seedbeds."

Finally, while admitting the importance of clean fallow in the crop rotation, it must be very clear that it is not the only element in the campaign for high yield from the fields. The importance of introducing a soil-protection system of tillage, timely and good-quality preparation of all plowland, well-organized seed growing, chemicalization and mechanization of crop farming sectors, reducing losses, and improving the quality of output should always be kept in mind.

Chemicalization is playing a growing role in raising the yield and fertility of soils and reducing farming's dependence on weather conditions. The delivery of mineral fertilizer, lime, toxic chemicals, and herbicides is increasing year after year. The kolkhozes and sovkhozes of the zone will receive almost 5.1 million tons of mineral fertilizer this year. But large losses of mineral fertilizers still occur frequently and agrochemical rules for their application are not followed. As a result the return from them varies. In Krasnodarskiy Kray in 1976-1978 the return from one kilogram of active substance was 5.6 kilograms of grain, while in Checheno-Ingushskaya ASSR it was 4.4 and in Dagestanskaya ASSR it was 2.7 kilograms. The efficiency of applying granulated superphosphate to rows concurrently with planting has long been established. The resources available for this, however, are poorly used, as can be seen from the following figures for the last four years (as percentage of resources): Krasnodarskiy Kray — 77; Stavropol'skiy Kray — 51; Rostovskaya Oblast — 72; Dagestanskaya ASSR — 49; Kabardino-Balkarskaya ASSR -- 52; Severo-Osetinskaya ASSR -- 74; Checheno-Ingushskaya ASSR — 45.

There is no doubt that the recently established associations and enterprises of Rossel'khozkhimiya [RSFSR Agricultural Chemistry] will straighten out the use of fertilizer. In speaking of this organization, I would like to emphasize that its operations in each region should be set up so that it is not just another contractor, but rather acts as a militant organizer of highly efficient chemicalization and leader of the campaign for maximum yields. It must work closely with the agrochemical service of the kolkhozes, sovkhozes, and agricultural bodies and with scientific institutions so that it can acquire a good reputation among the farmers by its work.

Fertilizer produces the maximum impact only when used in a crop rotation system. Many scientific studies made on different soils of the zone show, as does farm experience, that correct preparation and use of organic fertilizer and skillfully combining it with commercial fertilizers in the crop rotation will increase the return from fertilizer 30-40 percent. Therefore, we must move resolutely from occasional application for particular crops to a system of fertilization in the crop rotation.

Organic fertilizer must be used much more fully, as is done by many farms in the Kuban'. Farms in this region are working hard on a full program of organizational and technological steps for the production, storage, hauling, and application of organic fertilizers and construction of manure storage facilities. The challenge is to switch to purposeful, planned production of mineral fertilizers and a scientifically substantiated system of fertilizer use. As a result, whereas farms of the kray applied an average of 10.8 million tons of organic fertilizer a year in the Ninth Five-Year Plan, last year they got 32 million tons, 7.5 tons per hectare of arable land. In the near future the application of manure there will be raised to 10 tons per hectare of arable land.

Unfortunately, plans for hauling organic fertilizer are not being fulfilled in the other regions of the zone. Rostovskaya Oblast applies an average of 2.5 tons of manure, while the figure for Kabardino-Balkarskaya ASSR is 3.3, for Severo-Osetanskaya and Dagestanskaya ASSR's it is three, and for Checheno-Ingushskaya ASSR it is 2.2 tons. A sharp increase in the application of organic fertilizer is necessary this year and all appropriate steps toward this end should be taken. Manure must be prepared continuously, throughout the year.

Land reclamation, multipurporse incorporation of such lands, and efficient use of them is a key factor in achieving high yields and making them consistent. A great deal of experience has been accumulated with this. In Rostovskaya Oblast irrigated lands occupy six percent of all agricultural land and produce 20 percent of the crop farming output; in Stavropol'skiy Kray six percent of the fields are irrigated and they produce 21.2 percent of the gross output from crop farming. The specialized Stepnyye Zori Feed Sovkhoz located there harvests up to 100.8 quintals of feed units per hectare from irrigated alfalfa. Leading machine operators in the Don and Kuban' regions and Kabardino-Balkarskaya ASSR raise 100 and more quintals of corn grain per hectare on the average.

The exceptional role of irrigation shows particularly in drought years such as last year. It was precisely because they had irrigated lands that many farms in the Don region, Stavropol'skiy Kray, and other regions were able to accumulate the necessary amount of feed and come out of last year's very severe drought without large losses in animal husbandry.

The state is spending more money on land reclamation, and it is our duty to see that this investment is repaid well. Unfortunately, we must acknowledge that this is not always done. Whereas Stavropol'skaiy Kray, for example, receives 57 quintals of feed units per irrigated hectare of forage crops, in Dagestanskaya ASSR the figure is just 23. Each year large areas that have been prepared for irrigation fail to receive water.

As emphasized at the July 1978 Plenum of the CPSU Central Committee, the central challenge should be to improve the use of reclaimed lands and make up the lag that has been permitted in incorporation of them. Each irrigated hectare should have a permanent master; it must be assigned to a team and brigade. Where necessary interkolkhoz land reclamation associations should be formed and wages should be made directly dependent on the amount and quality of output received from the irrigated land. In the concluding year of the five-year plan we must get the following yields from irrigate land: at least 40 quintals of grain, 47 of rice, 49 of corn, 170 of vegetables, and 51 quintals of perennial grasses.

It is essential for agricultural agencies and farms to be more demanding with respect to the quality of irrigation systems and not consent to the construction of these systems using outdated plans on a low engineering level, which results in large expenditures of manual labor.

Increasing the production of winter crops, which produce higher yields in any year and are the principal grain crops in the North

Caucasus, is one of the chief ways to insure stable grain growing. Unfortunately, large areas of winter crops die each year during the winter because of mistakes in farming practices. In 1976-1979 farms in the Kuban' had to replant an average of 12 percent of the winter fields, while in Stavropol'skiy Kray it was 13 percent, in the Don region 31 percent, and in Dagestanskaya SSR it was 22 percent. The loss of grain harvest owing to winter crops' being killed is about 1 million tons. In addition, more than 300,000 tons of spring grain seeds are used each year for replanting.

The winter crop area was greatly enlarged this year. Winter crops were planted well and at good times at most of the farms. The paramount duty of farmers now is to preserve each hectare of winter crops, provide timely care and supplemental feeding, and harvest a maximum yield.

It is essential to give greater attention to the production of buckwheat and millet and make broader use of the important reserve of raising buckwheat on stubble and mowed fields. Many kolkhozes and sovkhozes of Stavropol'skiy Kray and Rostovskaya Oblast which have fallen 60,000-70,000 tons behind the plan for this valuable grain in the first four years of the five-year plan, should take aggressive steps.

The concluding year of the five-year plan should be a year of significant growth in rice growing. The production of white grain should rise to at least 1,220,000 tons. The militant organizational work done by the rice-growing pioneer of the country, Krasnodarskiy Kray, deserves every possible approval. The working people of the kray, under the leadership of party organizations, have undertaken a campaign to receive 1 million tons of Kuban' rice in honor of the 110th anniversary of the birth of V. I. Lenin. This is a good example for the other rice-growing regions.

It is very important this year, with due regard for the special characteristics and conditions at each kolkhoz and sovkhoz, to review the question of the area planted to grain crops with the intention of not just preserving but, where possible, expanding this area and continuing work to improve the structure of grain planting by expanding plantings of the highest-yielding crops and varieties and taking steps to improve grain quality, especially for wheat and rice.

A great deal of work must be done to significantly increase the production and sale to the state of sunflower and sugar beets. The questions involved in growth in these sectors were reviewed in detail last year at all-Russian conferences in Krasnodar and Belgorod, where many appropriate recommendations were developed. Unfortunately, they are not being carried out satisfactorily at many farms. This serious shortcoming must be taken care of this year.

The North Caucasus is a major producer of fruit and berries. It accounts for more than two-thirds of this output and all the grapes in total state purchases in the Russian Federation. The system of specialized sovkhozes has developed broadly in the zone. The large specialized associations Donplodoprom [Don Fruit Industry], Kuban'plodoprom [Kuban Fruit Industry], Stavropol' Fruit Industry, and Dagplodoprom [Dagestanskaya ASSR Fruit Industry], and the Kabardino-Balkarskaya ASSR and Severo-Osetanskaya ASSR trusts have been formed and are working successfully. Many specialized orchard farming farms have in reality become agroindustrial complexes where fruit production and storage, processing of part of the output, and sale by direct ties are combined in a single industrial process. The specialized system for production and state purchasing of grapes is developing on a planned basis.

The productivity of the vineyards and orchards is rising. But the experience of such leading specialized sovkhozes as Arkhipo-Osipovskiy in Krasnodarskiy Kray, Yegorlykskiy in Rostovskaya Oblast, Kenzhe and Nal'chikskiy in Kabardino-Balkarskaya ASSR, and Ordzhonikidzevskiy in Severo-Osetanskaya ASSR indicates that the opportunities for raising the yield of the orchards are far from exhausted. One of the important ways to intensify the sector is to expand irrigated plantings.

The situation with orchard farming at the kolkhozes and nonspecialized sovkhozes where almost half of the orchard area in the public sector is concentrated is alarming. The yield there is less than half that of the specialized sovkhozes. Interfarm cooperation in orchard farming must be expanded with the specialized farms exercising greater influence on development of the sector.

The work of the fruit tree nurseries needs fundamental improvement. The scientific research establishments and specialized departments at agricultural institutions of higher education are not fulfilling their plans for production of elite, sanitized seed material for nursery plantings.

I would particularly like to emphasize that the North Caucasus has significant unused opportunities for development of orchard farming on slope lands, which is confirmed by the experience of the Arkhipo-Osipovskiy and Mikhaylovskiy Pereval sovkhozes in Krasnodarskiy Kray and various farms in Kabardino-Balkarskaya ASSR. A study of the land resources of the region, in particular the slopes, foothills, and forested hills, shows the possibility of setting up at least 40 new specialized orchard farming sovkhozes there, which would permit a significant increase in the production of fruit and berries.

Highly productive use of machinery and tractors is decisive in meeting the pressing challenges of raising the efficiency and stability of crop farming, above all grain growing. Despite some growth for the zone as a whole, the average daily output per standard tractor in many regions continues to be low. How can this be tolerated when certain jobs drag out for long periods of time, the requirements of scientific farming are violated, and yield is lost?

Nonetheless, many kolkhozes and sovkhozes allocate virtually no money to establish repair facilities, are not building repair workshops, technical servicing points, and machine yards and buildings for machine storage, and write off machinery ahead of time.

The organizational forms by which machines and tractors are operated and serviced need major improvements. Agricultural agencies and scientific research institutions must carefully study all the best practices that have been developed in Krasnogvardeyskiy Rayon of Stavropol'skiy Kray, Verkhnekhavskay Rayon of Voronezhskaya Oblast, Moldavia, and other regions and on this basis insure the introduction of new, better organizational forms for improving the use of machinery.

As for animal husbandry, the main thing is to establish a stable feed base. Attention this year must be focused on a significant increase in the production of good-quality hay, root feeds, and legumes and improving the quality of haylage, silage, and other feeds. The construction of modern feed storage facilities must be intensified significantly. The farms in Krasnodarskiy Kray and Dagestanskaya and Kabardino-Balkarskaya ASSR's are particularly far behind with this important work. In short, much more attention must be given to questions of feed production and improving feed quality. The capabilities of irrigation farming should be used more fully to achieve this.

Many kolkhozes and sovkhozes are now experiencing a difficult winter, attempting to surmount the great difficulties caused by last year's drought and small harvest. Under these conditions it is very difficult, but essential to insure survival and growth of the livestock herd and increase the production of animal husbandry output. As experience shows, there is only one way to do this: a high level of organizational work at the livestock farms, broad competition among livestock workers, use of all existing capacities for increasing forage supplies, and complete, good-quality preparation of all feeds for feeding.

Science has a large part to play in raising the efficiency and stability of crop farming. The scientific institutions of the zone have given agriculture highly productive varieties of winter wheat, corn, and sunflower which are raised over enormous areas. The farmers expect that the scientists will intensify their work on the development of new varieties with heightened winter hardiness, drought resistance, and better industrial qualities. The scientific institutions should give more attention to development of programs of differentiated soil-protection measures; measures toward specialization of production based on interfarm cooperation and agroindustrial integration; raising the efficiency of mineral and organic fertilizers and utilizing liquid manure; development of steps for maximum accumulation and economical, more efficient use of water; improving the quality of output; significantly increasing the production of grain corn, legumes, sorghum, and soybeans; fundamental improvement in seed growing for alfalfa and other perennial grasses; development of accelerated methods of building up salinized soils. Agriculture agencies, scientists, and scientific institutions should be made much more accountable for the introduction of scientific advances and progressive know-how in production.

Spring fieldwork is broadening with every day. Responding on the job to the decree of the CPSU Central Committee and USSR Council of Ministers entitled "Additional Steps To Prepare and Perform Spring Field Jobs in 1980," the farmers of the North Caucasus, like all farmers of the RSFSR, are making every effort to lay a strong foundation for a good harvest. They are resolved to celebrate the 110th anniversary of the birth of V. I. Lenin in a worthy manner, make the concluding year of the five-year plan a year of Leninist shock labor, successfully perform all plans and obligations, and produce more crop and livestock output for our Motherland.

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REGIONAL DEVELOPMENT

PROGRESS OF IRRIGATION PROGRAMS IN VARIOUS UKRAINIAN OBLASTS DESCRIBED

Kiev SIL'S'KI VISTI in Ukrainian 21 May 80 p 2

[Article by L. Holovko, head of the Main Administration on Utilizing Irrigated and Drained Lands of the Ukr SSR Ministry of Agriculture on: "An Irrigation Program"]

[Text] By May 15 over 80 percent of the total watered land area has been sown in the Krymskaya Oblast, 70 percent in Khersonskaya Oblast, 60 to 70 percent in Odesskaya, Dnepropetrovskaya and other oblasts. This allows for the start of planned watering to overcome the lack of moisture in the soil evident on many farms in the southern oblasts.

According to information from the Ukr SSR Hydrometry Service Administration moisture reserves in the meter layer of soil under winter crops in the Nizhni Sirogozy, Kakhovka, Chaplynky Rayons of the Khersonskaya Oblast by May 8 amounted to not more than 77-93 mm, which is two to two and a half times less the optimal moisturizing. In the northern rayons of Krymskaya Oblast moisture reserves were even lower, 62-74 mm. Moisture reserves under spring grain crops were within critical limits in the plowing and meter layers of soil in the Kryvoy Rog Rayon, Dnepropetrovskaya Oblast, and also a number of rayons in Nikolayevskaya Oblast. There are low moisture reserves under perennial grasses (half of the usual norm) in specific rayons of the Zaporozhskaya Oblast. However, on some farms the watering tempo has not picked up the needed speed, it is being held up without proper justification.

In the Novotroyitskiy Rayon, Khersonskaya Oblast, Apostolovskiy and Shirokovskiy Rayons, Dnepropetrovskaya Oblast, Kiliyskiy Rayon, Odesskaya Oblast, operative watering plans are being fulfilled. In the Krymskaya Oblast kolkhozes 38,000 crop hectares have been watered or 30 percent of the planned area.

However, up to May 13, crops have not been watered in Berezanskiy, Yelanetskiy, Novobugskiy and Ochakovskiy Rayons, Nikolayevskaya Oblast, Velykoaleksandrovskiy and Nizhneserogozskiy, Khersonskaya Oblast. Watering is being delayed in Zaporozhskaya and Voroshilovgradskaya Oblasts. At the kolkhoz imeni Shevchenko, Orekhovskiy Rayon in the Zaporozh'e area, there are 1,281 hectares of irrigated land. The pressure pipeline system, however, has not yet been filled with water. Artificial rainfall machines DDA-100 M have not been mounted on tractors. There are only enough machine operators to work one shift. Irrigation system imperfections allowed during construction are showing their effects now.

Because of ill-timed preparation of the internal farm irrigation network and artificial rainfall technology, watering has been delayed at the kolkhoz "Pravda" in the Tatarbunarskiy Rayon and at the sovkhoz "Chornomorets'", Ovidiopolskiy Rayon, Odesskaya Oblast where there are respectively 4,125 and 800 hectares of reclaimed lands. At the kolkhoz imeni Ul'yanov, Pavlogradskiy Rayon, Dnepropetrovskaya Oblast, last year 150 hectares of irrigated plots were utilized, however, this year crops have not been watered because there is no pressure pumping equipment available and there are no "Frigates".

This is a result of a negligent approach to watered lands and an inadequate control of the planned reclamation work on the part of agricultural and water farming organs, and farm managers and specialists.

Artificial rainfall technology has not been prepared for watering in certain oblasts. In the Kirovogradskaya, Kievskaya and Zakarpatskaya Oblasts the readiness coefficient is 0.92-0.93. Teams have not been set up to provide for two to three shift watering unit work. This is being delayed at the Zaporozhskaya and Nikolayevskaya Oblasts where 350-360 machine operators are needed for two shift work.

Oblast and rayon agricultural organization specialists as well as oblast watering farm representatives and administrations for the use of irrigation systems should immediately correct these shortcomings, and provide for extensive watering of perennial grasses, orchards, vineyards and vegetable crops. Watering of winter crops for green chop should be speeded up for prompt harvesting, and post-hay harvest crops should be sown in this area.

Watering of crops on dry lands which border irrigation canals, ponds, streams and other water sources is an important reserve in grain and feed production increase. Movable irrigation equipment and other technology should be utilized there.

Soil chapping is an effective measure used in irrigation. When combined with watering it yields good results on almost all crops. Perennial grasses and cultivated crops should be chapped now, especially in heavy and spring flooded soils. In recent years special crevice cutters have been manufactured on enterprises of the State Committee on Agricultural Technology for use in reclaimed areas. Farms receive them and they should be fully utilized.

The irrigation system should be carefully adhered to in all areas where high yields of winter wheat and corn for seed have been programmed. These crops must be watered in accordance with the calculated norms.

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REGIONAL DEVELOPMENT

ADVICE ON GETTING RID OF STANDING WATER IN CROP FIELDS

Kiev SIL'S'KI VISTI in Ukrainian 13 May 80 p 1

[Article by M. Petunov, head of Main Administration Section on Use of Irrigated and Drained Lands of the Ukr SSR Ministry of Agriculture and D. Tyutyunnyk, scientific worker, Ukrainian Scientific-Research Institute of Hydrotechnology and Reclamation, candidate of agricultural sciences on: "Deep soil loosening in drained areas"]

[Text] In the republic's western oblasts a large portion of the land area is characterized by unsatisfactory water-physical properties. The surface area is covered with clay soil which restricts water absorption. Therefore, following rains, the upper layer of soil remains overmoistened. In years with an above average amount of precipitation cultivated crops as well as some winter crops get completely soaked, spring crops are severely damaged by fungus diseases.

To increase the productivity of these areas a potter's drainage system is utilized. This method was used most extensively in Lvovskaya, Rovenskaya, Ivano-Frankovskaya, Zhitomirskaya and Zakarpatskaya Oblasts.

It should be remembered, however, that overmoistened mineral soils drained through the potter's drainage method are left with a lowered, and in the Polissya and pre-Carpathian area, even poor soil fertility. Clay plowing and deep horizons in time thicken, preventing water penetration. To renew the water-physical properties of their structure and enrich them with calcium and other nutrients an agro-reclamation complex must be utilized with the drainage, a deep soil loosening and liming, and also organic fertilizer application. Research has indicated that soil loosening along with other agro-technological measures is highly effective. Drainage is improved, soil moisture accumulates better in the plowing layer, agro-physical properties and soil aeration are improved, the productivity of agricultural crops increases by 15-25 percent.

It is best to do this work in the spring or fall when the area is free of crops. In the spring soil loosening is done after fall plowing of winter fallow or before plowing when the soil is sufficiently dry. Soil loosening should be done only in cultivated crop areas (corn, vegetables, potatoes, feed root crops and other late crops). In the summer and fall this is done after mowing winter crops for green chop, flax harvesting, also winter crops and spring grain crops, corn for silage.

The depth and intervals for soil loosening are determined according to soil type. In the turf-podzol, clay-loamy surface soil of the pre-Carpathian area the depth is 60-80 cm. It must be remembered that tube depth is not more than 80-90 cm in most of the drained areas. Therefore, to avoid damage to them the soil is loosened 20 cm above the drain depth.

The space between unit V-feet and the passages should provide for massive loosening. Tilling direction in this type of soil is crosswise to the drains.

In the turf-podzol, clay-sandy soils of the Polissya area the depth is determined by the heaviness of the thickened horizon, 60 to 70 cm. In the forest-steppe zone and in specific places in the pre-Carpathian area and Polissya with podzol, clay-loamy and clay soils (dark grey, chernozem-meadow, turf) with a wider occurrence of the thickened layer, the depth is increased to 80-100 cm, the intervals to 1.2-2 meters. Massive loosening over 60-80 cm deep is accomplished by the two V-feet of the RNT-0,8 unit using tractors T-130, T-100 on loamy soils. Over sandy areas K-700, K-701 units are used over T-130 tractors with three V-feet set 0.6 meters apart. The VR-80 equipment offers promise also combined with tractors K-700 and T-150 K.

Experience on many farms in the Lvovskaya, Ivano-Frankovskaya, Zakarpatskaya, Zhitomirskaya and other oblasts shows that deep soil loosening of drained areas along with agro-reclamation measures assure high and steady yields of all agricultural crops.

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MANAGEMENT OF INTERFARM ENTERPRISES DISCUSSED

Moscow IZVESTIYA in Russian 21 Mar 80 p 2

[Article by N. Mel'nik, chairman of the Ukraina Kolkhoz; A. Konozhko, director of the Yuzhnyy Sovkhoz; and others (Veselovskiy Rayon, Zaporozhskaya Oblast): "An Arid Zone Can Also Have Enough Feed"]

[Text] The feed preparation industry has demonstrated its potentials. Who should manage the interfarm enterprises?

To imagine today's Tavricheskaya Steppe one has only to visit one of the farms of our rayon. The landscape is level, the soil is chernozem, and the fields are open to the sun and wind.

The heat and winds give rise to instability in agriculture. According to statistics kept over the course of many years, there is a successful spring harvest one out of 3 years. Until recently this was the main difficulty in our work. Two years ago the Dnepr water arrived -- the Severo-Rogachikskaya irrigation system provided it, and now every fourth hectare of the rayon's 96,000 hectares of plowland is watered. Of course, this has been favorably reflected in the work results. During the 10th Five-Year Plan gross output rose 24 percent, while labor outlays per quintal were reduced almost one fifth.

In implementing the party's decision rayon kolkhozes and sovkhozes advanced production to a new level and used the opportunities created for seeking new organizational forms of economic activity. Three years ago there were born here interfarm enterprises for the production of beef, pork, eggs, poultry, and rabbits and for vegetable processing. They have proved to be completely effective -- they are producing one quarter of all our beef and over half of our pork, all our eggs, and 82 percent of the rabbit and poultry meat.

But all these results would not have been possible without a stable feed base. Everyone was convinced of this the moment the interfarm enterprises began to operate. Feeds were brought in from all ends of the rayon. They were of poor quality, and there was constantly a shortage of them. Then the kolkhoz council decided to set up a specialized interfarm enterprise for feed production. They transferred the interfarm mixed feed plant to it and allocated to it 10,000 hectares of land, including over 3,000 irrigated hectares. Within literally one year, with the worst weather conditions, feed production was converted to an industrial basis and had become a reliable guarantee of animal husbandry development.

Last year feed crops occupied 4,000 hectares in the crop rotation system; in the coming years up to 80 percent of the plowland will be assigned to them. They produced 28.1 quintals of feed units on the average and 38.6 per irrigated hectare. Of course, this is not much for a specialized farm, but one must not fail to take into consideration last year's very severe drought. The feed shop which was built at an opportune time to make granules and briquets and the storage facilities made it possible to best utilize everything that was grown.

Last year the interfarm enterprise produced about 8,000 tons of grain, 1,000 tons of sunflowers, 15,000 tons of feed beets, and 55,000 tons of the green mass of corn, barley, and annual grasses, and it processed all of this, taking it upon itself to fully provide feed to the interfarm animal husbandry enterprises. Crucial assistance was rendered to many rayon farms. It is now producing 22 types of feed, and the output of the interfarm enterprise makes up over 30 percent of the rayon feed balance.

All the workers engaged in feed production have a direct interest in the results of their work and bear full responsibility for feed quality. AVM [expansion not available] and granulator operators receive 5 rubles 40 kopeks for procuring one ton of first class feed and 2 rubles 92 kopeks for third class feed. The laboratory makes analyses every 2 hours. It has the right to stop the process and specify different conditions. The mechanizers and operators at the animal husbandry enterprise receive piece rates for each quintal of weight gain and progressive rates for exceeding the plan. Feed producers and animal husbandrymen have a direct interest in the final output of a quality product, although the material relations between them are like those of industrial enterprises. The responsibility is the same. Despite the certification of quality which accompanies each lot of feed, A. Udovina, enterprise director for beef production, for example, repeatedly sent samples to the oblast laboratory and in case of deviation from the standards strictly admonished the feed-processing shop.

We want to emphasize again one special feature of our enterprise. Here nothing but feed occupies the heads of the directors and the hands of the workers. This is their special concern, the most important daily business, and the concentration of all feed production in the same hands makes it possible not in words, but in deeds to actually be engaged in adopting the achievements of science and technology and advanced practices and to make more extensive use of reserves. We have long been convinced that this is not within the power of an individual kolkhoz or sovkhoz and that they simply do not have the capacity to do all this.

Take just the matter of utilization of agricultural production wastes in feed preparation. Every farm has such wastes. But their fate has been the same -- a large part of them are irrevocably lost. The farms do not have the equipment and storage facilities for processing them. It is quite another matter on the rayon scale. Here is one example: the layout of the grain fields before harvesting on 50-hectare plots. Swathes are required for fire prevention, but, you see, the grain is cut at waxy ripeness when the grain has a moisture content of 30 percent and no elevator will accept it. Little of it is gathered up on an individual kolkhoz, but this grain amounts to 4,000 to 5,000 tons for the rayon. Four farms can fully supply mixed feeds on a year round basis. We have built a special warehouse for this purpose and acquired a compressor from the Melitopol' Plant; by reducing the temperature to 4° or 5° all the grain will be stored in excellent condition and processed into feed as required.

It is common knowledge that one kilogram of alfalfa juice contains 80 grams of protein. A wine press was delivered, and we pass all the alfalfa through it before it enters the AVM. We preserve the juice in special containers and add it to the feed later according to a formula. We have built a synthetic milk shop and are producing 12 tons a day; in the very near future we will have the capacity to produce 100 tons. This will make it possible to increase milk sales in the rayon 1,500 to 2,000 tons and to raise marketability from the current 83 percent to 95 percent. Last year over 300 tons of sunflower wastes and 3,000 tons of grain were processed. Carrots were being lost in the fields; we processed them for meal. The Yuzhnyy Sovkhoz harvested sainfoin seed, but the straw was just stacked. It would have stood there for many years. But we processed the straw and with the appropriate additives obtained an excellent feed.

Yes, we have learned how to raise a large yield of various crops, and the interfarm enterprise has graphically demonstrated how great our reserves really are and how important it is to take everything from the earth and provide good feed to the animals. Another important problem is also being solved -- previously over 30 percent of the feed was lost during the procurement and storage period. Now all the feed procured is processed and securely stored daily according to a strict and predetermined formula and is delivered to animal husbandry enterprises by weight.

In the next few years complete development of crop rotation will make it possible to reduce to the minimum the use of wheat for livestock feed and to make extensive use of soya, corn, feed beets, and other valuable crops for this purpose. The interfarm enterprise for feed production and processing has already become a reliable aide to rayon kolkhozes and sovkhozes. Here are some statistics that speak for themselves. Veselovskiy Rayon produced 1,930 tons of milk in January of last year and 2,007 tons this January. Meat sales increased from 654 to 812 tons. The livestock herd increased almost 2,000 head of cattle, 1,000 head of hogs, and over 30,000 head of poultry.

In this letter we must also share the concerns which have not been solved right away locally. We still have very little specialized feed raising equipment. As is common knowledge, the time for haymaking is shortlived, and there are still considerable product losses because of an equipment shortage. The question of construction remains very complex. In the last 10 years the number of head of livestock in the rayon has almost doubled, and it is very difficult to repair the barns and build new ones -- there are no materials. All the plans of our interkolkhoz construction enterprise are based on centralized funds, and at the same time the potentials for supplies of local construction materials are clearly being underestimated. Moreover, everyone knows that Chernigovka has superb crushed stone and Takmak has limestone from which it is possible to make concrete slabs. If the internal oblast construction materials base were developed more energetically, our problems would be solved much more easily.

The interkolkhoz construction and installation administration which we established is one of the first in the country and has now passed fully out from under the control of the interkolkhoz council. It is directed from Zaporozh'ye and Kiev. The main thing here is not the starting up of projects of prime importance for the rayon, but the meeting of a goal set from above; installations are divided into "profitable" and "unprofitable." Therefore, for 2 years now buildings of a cattle complex, a sheep farm, a duck farm, and housing for animal husbandrymen have not been put into service. In the last 2 years the construction and installation administration used scarcely more than 2.5 million rubles. At the same time projects costing 3.5 million rubles were built in the rayon by using our own building organization.

All the same the eyes of certain builders do not look beyond the rayon. We have not succeeded in establishing here an interfarm enterprise for feed production since there was a special department here in the oblast agricultural administration. Questions, demands for reports, and so forth have poured in. Suggestions about the organization of similar departments in the republic have been made. Why? You see, everyone knows that an interfarm kolkhoz is established by the kolkhoz council and is completely under its jurisdiction as far as all its activities are concerned. Any direction of it through the council head will be of no use.

Chaos still reigns in the provision of instruments and materials for day-to-day operations. Strainers, milk-pails, yokes, and smocks are very hard to find. Sel'khoztekhnika does not have any more. The rayon potrebsoyuz has some from time to time, but it is impossible to acquire them: they issue them only for cash, and the bank forbids such operations. We are experiencing serious difficulties with micro- and macro-additives and mineral feeds.

There is another serious problem. Our rayon has six sovkhozes; all of them enjoy the services of the interfarm enterprises and are ready to participate both in form and essence in their activity. But all of them are under the jurisdiction of the Zaporozh'ye trusts, and they are subordinate to the Ukrainian Ministry of Sovkhozes. A departmental barrier has been erected, and it substantially interferes with uniting the efforts of the entire rayon to increase agricultural output.

Go out to the steppes now and you feel the imminent breath of spring -- it is time for intense labor by the agricultural worker. Now is the time to calculate once more whether we have considered and done everything to see that a guaranteed feed reserve has been assured for our animal husbandry. A stable feed base is laid in the spring, and it is important not to let this time slip by.

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FACTOR METHOD FOR PLANNING IN PLANT RAISING

Moscow PLANOVOYE KHOZYAYSTVO in Russian No 4, Apr 80 pp 44-52

[Article by A. Monov, deputy chief of a department of USSR Gosplan and V. Ivashchenko, chief of section of USSR Gosplan: "Factor Method for Planning in Plant Raising"]

[Text] During the November (1979) Plenum of the CPSU Central Committee, L.I. Brezhnev emphasized that "one of the most important tasks resulting from the party's program for raising the welfare of workers is that of ensuring the uninterrupted supply, adequate production and broad assortment of food products"*.

The draft plans for agricultural development must be prepared based upon the tasks and goals established during this plenum. Moreover, the planning estimates must be preceeded by a great amount of work associated with the preparation and analysis of statistical materials for past years, based upon the data of scientific-research institutes, state strain testing stations and the experience of leading farms. An economic analysis of plant raising, taking into account the trends in production specialization and concentration, inter-enterprise cooperation and agro-industrial integration, is making it possible to uncover production reserves which will justify the calling for improvements in branch efficiency in the draft plans.

The development of the five-year and annual plans for social and economic development is based upon the procurement volumes for agricultural output, equated for the union and autonomous republics, krays, oblasts, rayons and farms, and also upon the capital investment limits established for them and the deliveries of material-technical resources. Based upon these indicators, estimates are developed for the production of plant raising products and balances are composed for the gross yields.

In planning the production of the different types of plant raising products, special importance is attached to making proper use of the principal production resource -- land -- improving the structure of the area under crops, mastering the correct crop rotation plans, raising the cropping power of all agricultural crops based upon systematic improvements in soil fertility, improving the culture of farming, increasing the dosages and ensuring the proper applications of mineral and organic fertilizers, introducing new varieties of sown crops and improving the utilization of reclaimed lands.

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* L.I. Brezhnev. Speech delivered before the Plenum of the CPSU Central Committee on 27 November 1979. Moscow, Politizdat, 1979, p 16.

Thus, in order to compute the production volumes, use is made of data on the dimensions of the sown areas and on the cropping power of the agricultural crops. A complicated and important indicator in the computations is the cropping power level. Actually, the overall area of arable land and plantings, for a republic, oblast or kray, changes to only a negligible degree. Actually, for a majority of the agricultural crops, increases in the gross yields are achieved by raising the cropping power, that is, production intensification. However, the reserves available for the structure of the area under crops and for expanding the plantings of the more productive crops are not being utilized fully and they must be taken into account in the estimates.

After determining the most effective structure for the area under crops, estimates must be made with regard to the cropping power and gross yields for the agricultural crops, with use being made of the factor method of validation and also the requisite norms.

Today the norms are viewed as being an indispensable part of the planning estimates. They make it possible to organize the preparation of plans in a better manner, to obtain an improved balance and scientific validity for them and to organize more efficiently an analysis of the results of fulfillment of the planned tasks.

During the past few years, a complex of norms for agricultural planning at the union republic and economic region level has been developed by the country's scientific research institutes and approved by the USSR Ministry of Agriculture. These norms were used for the very first time in preparing the draft five-year plan for 1976-1980. It is our opinion that in plant raising the most skilfully developed norms are those for mineral fertilizer expenditures per quintal of product obtained and for increases in yield brought about by land reclamation measures and so forth. However, we still lack scientifically sound norms for increases in yields that are dependent upon reductions in the schedules for carrying out field work, the introduction of new varieties and progressive technologies for the production of agricultural crops, the mastering of crop rotation plans and other measures.

We are of the opinion that growth in the production of agricultural products during the Eleventh Five-Year Plan will be realized mainly through the proper utilization of fixed productive capital and material, financial and labor resources. The degree to which the farms are supplied with productive capital of an agricultural nature and the capital-labor ratio and also the degree to which they have mineral fertilizers at their disposal will influence perceptibly the intensive development of agricultural production, as borne out by the data in Table 1.

TABLE 1

	Nonchernozem Zone of RSFSR	Including		Belorussian SSR	Estonian SSR
		Moscow Oblast	Leningrad Oblast		
Fixed productive capital of agricultural nature at kolkhozes and sovkhozes, thousands of rubles, per:					
100 hectares of land:					
1975	51.8	149.0	202.0	66.7	105.0
1978	68.2	201.6	258.0	88.1	133.0
worker:					
1975	6.4	10.7	13.5	4.5	13.9
1978	8.8	15.4	18.6	6.2	17.8
Application of mineral fertilizers, kg of active agent per hectare of area under crop:					
1975	104	277	270	191	195
1978	128	276	292	216	232
Gross agricultural output at all categories of farms per 100 hectares of agricultural land, thousands of rubles:					
1973-1975	38.0	90.4	92.5	64.5	64.9
1976-1978	38.9	94.6	112.5	68.8	72.3
Cropping power, quintals per hectare:					
grain crops					
1973-1975	13.2	24.6	21.0	22.6	25.4
1976-1978	15.3	26.9	21.9	21.7	26.5
potatoes					
1973-1975	125.3	137.7	159.0	147.3	168.3
1976-1978	106.0	117.0	133.0	161.0	141.0
vegetables					
1973-1975	199.0	376.0	310.0	156.7	205.0
1976-1978	175.0	326.0	268.0	151.0	166.0

The level of gross output production and the cropping power of the agricultural crops will improve as increases take place in the availability of funds and in the applications of mineral fertilizers. Thus, although the value of the fixed productive capital of an agricultural nature, for the nonchernozem zone of the RSFSR as a whole and for 100 hectares of land, amounted to 51,800 rubles in 1975 and 68,200 rubles in 1978 and gross output was 38,000 and 38,900 rubles respectively, in Moscow and Leningrad oblasts in this same zone, where there are greater amounts of this capital (by 2.9 and 3.9 times), the gross output per 100 hectares of agricultural land was 2.4 and 2.9 times greater and the cropping power higher (with the exception of potatoes). However, during the 1976-1978 period and compared to 1973-1975, almost no increase was noted in gross output in the nonchernozem zone of the RSFSR, notwithstanding a considerable increase in the fixed productive capital. A reduction in the cropping power of potatoes and vegetables here is explained for the most part by extremely unfavorable weather conditions for the cultivation and harvesting of these crops, especially in 1976 and 1978, as a result of which there was a shortfall in yields and considerable output losses and also shortcomings in the use of productive capital (idle time of agricultural equipment during tense periods of work, shortage of skilled machine operator personnel and of individual machines and mechanisms for the complex mechanization of production and so forth). Similar situations are being observed in some other regions of the country.

The task consists of utilizing the potential created in agriculture in the most effective manner and achieving a more complete return from the productive capital. Thus, on the one hand the estimates for the plans should take into account an increase in the intensity of use of production capabilities which were already created prior to achieving the planned capabilities and, on the other -- to allocate capital investments and to place in operation new capabilities for achieving the planned increases in output, while taking into account their normative or planned return.

The scientific research institutes developed norms for the output-capital ratio for farming and animal husbandry for the Tenth Five-Year Plan, by union republics and economic regions of the country. For example, 266 rubles worth of fixed productive capital is required in the non-chernozem zone of the RSFSR in order to obtain 1 ton of grain; in order to obtain 1 ton of potatoes -- 112 rubles and 1 ton of flax fibre -- 791 rubles. In carrying out the computations for all types of agricultural products, it is possible to determine the overall requirement for the capital to be used for obtaining, during the planned period, the volumes of production output called for and, conversely, by having data available on the presence of capital it is possible to compute the volume of gross agricultural output.

In planning practice, such computations are usually carried out for the purpose of validating those capital investment requirements (through the output-capital ratio) needed for obtaining a particular level of gross output production for farming and animal husbandry. Moreover, these computations are carried out in several variants.

However, the norms developed for the Tenth Five-Year Plan were insufficiently valid and for individual republics they were difficult to use.

Let us examine the computational procedure for determining cropping power. As is known, the formation of an agricultural crop harvest is influenced by a number of factors, which can be divided into two groups: natural and economic. How they affect the formation of a harvest can be seen using as an example the dynamics of winter wheat cropping power at strain testing stations in the Moldavian SSR (see Table 2).

TABLE 2

Cropping power, in quintals per hectare	Factors which affect the cropping power of winter wheat during the growing season		
	Precipitation, in mm	Mineral fertilizer applications, in kg per hectare of active agent	Productive density of plants, number per m^2
35.05	464	110	386
44.64	416	128	509
48.05	466	161	534
48.60	473	163	533
56.94	466	174	581

Based upon the table, it appears that the cropping power of winter wheat in the given instance is dependent upon two factors: fertilizer applications and the productive density of the plants per square meter, with both factors being influenced by man. In other words, the cropping power level in the given instance is determined by economic factors.

The task of the agricultural and planning organs consists of finding optimum solutions, in all instances, for obtaining stable and high agricultural crop yields, that is, preparing the foundation at the present time for obtaining the planned yield.

Within the framework of an ASPR [avtomatizerovannaya sistema planovykh raschetov; automatic system of planned computations], the Main Computer Center of USSR Gosplan and the All-Union Scientific-Research Institute of Cybernetics of the USSR Ministry of Agriculture carry out work in connection with forecasting cropping power and the gross yields for agricultural crops. Using an approved method, specialists attached to the agricultural departments of USSR Gosplan and the gosplans of the union republic carry out computations with regard to determining the increases in the production and cropping power of the agricultural crops. The use of mathematical methods and electronic computers, based upon data that is already available and norms for increases in cropping power and taking into account the action of the principal production factors, will make it possible, through the automation of computations, not only to increase the number of economic and organizational factors considered but also to reflect in the computations the effect on cropping power of the principal natural factors during critical periods (air and soil temperatures, amount of precipitation during formation of the harvest and so forth) the cultivation of the agricultural crops.

Certain types of information are required for determining possible growth in the production of crop husbandry output based upon factors: data on the period that has elapsed, material resource limits for the planned period, information from state strain testing stations and the recommendations of scientific-research institutes on the technologies for cultivating agricultural crops.

Importance is attached to selecting the period to be used as the base period. In view of the fact that dry years or years marked by unfavorable weather conditions occur frequently in many regions, the base period for these regions should ideally be no less than 8-10 years. A five-year period for evaluating indicators can be employed for those regions in which sharp drops in temperature are not observed.

A cropping power estimate is based upon increases in gross yields, obtained under the influence of various factors. Simultaneously, during the very same period, the cropping power level and the volumetric indicators of factors which affect the gross yields are recorded. These serve as the basis for all subsequent readings.

For example, during the 1966-1970 period, farms in the Russian Federation applied an average of 0.84 quintals of mineral fertilizer to each hectare of grain crops annually and they obtained 13.5 quintals of grain per hectare. During the Ninth Five-Year Plan, the mineral fertilizer applications increased by 0.6 quintals per hectare and yet the cropping power of the grain crops was raised by only 0.2 quintals per hectare. According to the norms, the use of mineral fertilizers should have produced an increase of no less than 0.6 quintals per hectare. In other words, if the 1971-1975 period was used as the base period for computing cropping power during the Tenth Five-Year Plan, then the indicators for grain production volumes would have been too low and the fertilizer requirements -- too high.

Similar situations developed in many oblasts and autonomous republics in the non-chernozem zone of the RSFSR during the Tenth Five-Year Plan. During the 1976-1978 period and compared to the Ninth Five-Year Plan, the deliveries of mineral fertilizers in the zone increased by an average of 3.4 million tons or 33 percent and gross farming output at the kolkhozes and sovkhozes -- by only 2 percent.

However, although only a five-year period is considered when determining the basic indicators, and increase in cropping power may occur as a result of favorable weather conditions during these years.

Convinced of the correctness of the indicators for the base (reporting) period, we proceed with our computations for the planned period. The computations can be conducted for the final year of the five-year plan and also for the intermediate years. Moreover, data should be available for this period on the funds for mineral fertilizers and agricultural equipment, on the amount of reclaimed land to be placed in operation, on the liming of acid soils, on applying organic fertilizers, on introducing new and highly productive varieties and hybrids into operations and also other data affecting improvements in soil fertility and in the cropping power of the agricultural crops.

Hence the planning and agricultural organs must simultaneously acquaint the oblasts, rayons and farms not only with the procurement volumes for farming and animal husbandry products for the planned period, but also with the capital investment limits, the volumes of mineral fertilizers and other material and technical resources and also with other initial data, as required for the preparation of the draft plans for production output. VASKhNIL [All-Union Academy of Agricultural Sciences imeni V.I. Lenin] and the State Committee for the Strain Testing of Agricultural Crops must inform the planning and agricultural organs with regard to which new varieties and agrotechnical methods are recommended for introduction into operations during the next few years at the kolkhozes and sovkhozes. The volumetric indicators for introducing them into operations are determined taking into account the local peculiarities. Importance is also attached to taking into account the planned changes in crop rotation plans, in the soil cultivation systems and in the efforts aimed at combating diseases, pests and weeds.

In order to compute the increases in yields, the effectiveness of each measure must be determined. As mentioned above, norms were developed only for some of them and mainly for the Tenth Five-Year Plan. In order to use the norms when composing the estimates for the draft five-year plan for 1981-1985, it will be necessary for the scientific-research institutes which are responsible for developing the norms to accelerate their presentation to the USSR Ministry of Agriculture and to USSR Gosplan.

Let us examine the effect generated by the principal factors on the level of grain production, using one of the main factors as an example -- use of mineral and organic fertilizers. The data of scientific-research institutes and the experience of kolkhozes and sovkhozes reveals that, for the country as a whole, more than one half of the increase in a crop is obtained from the use of fertilizers and in the non-chernozem zone -- more than 60 percent.

As improvements are realized in the culture of farming, as the schedules for carrying out field work are reduced and as these schedules fall more in line with the agrotechnical schedules, the proportion represented by fertilizers in crop increases will itself increase. The computations reveal that during the Ninth Five-Year Plan, in the Ukrainian SSR, an increase in the use of mineral fertilizers (output corresponds to the norms) produced an increase of 38 percent in grain production, in the Belorussian SSR -- 65 percent, Lithuanian SSR -- 62 and in the Moldavian SSR -- 51 percent.

Interesting data on fertilizer applications and on the cropping power of grain crops has been obtained at strain testing stations in a number of rayons in the RSFSR (see Table 3)

TABLE 3

	Average amount of fertilizer applied annually per hectare of arable land, quintals of conventional units			Average cropping power of grain crops, quintals per hectare		
	1961-1965	1966-1970	1971-1975	1961-1965	1966-1970	1971-1975
RSFSR -- total	2.7	5.1	7.1	17.2	22.8	24.6
Including rayons:						
Severo-Zapadnyy	5.0	7.3	10.2	17.8	23.9	28.6
Tsentral'nyy	4.3	6.8	9.3	17.6	25.8	27.4
Volgo-Vyatskiy	3.8	6.4	11.1	15.5	22.5	24.9

Owing to the fact that very little fertilizer was applied to the production plantings of kolkhozes and sovkhozes in the RSFSR (in 1971-1975, only 1.2 quintals of standard mineral fertilizer per hectare), the cropping power of grain crops for the republic as a whole amounted to only 9.8 quintals per hectare in 1961-1965, 13.5 in 1966-1970 and 10 quintals per hectare in 1971-1975.

In regions (usually dry ones) where negligible quantities of fertilizer are still being applied, the increases caused by mineral fertilizers will be small. Here the cropping power is determined by factors associated with controlling the water regime. However, this is not meant to imply that the fertilizer produces only low results. According to data supplied by the All-Union Scientific-Research Institute of the Grain Economy (settlement of Shortandy in Tselinogradskaya Oblast), an application of 1 quintal of phosphate fertilizer (in conventional units) to soil in northern Kazakhstan, where there was a deficiency of phosphorus in the soil, produced an increase in grain of no less than 3-4 quintals of grain, or considerably more than that for the country as a whole.

The effectiveness of an application of 1 quintal of mineral fertilizer, according to data supplied by VIUA [All-Union Scientific Research Institute of Fertilizers and Soil Science], amounts to an average of 1 quintal of grain for the USSR as a whole. Moreover, the use of fertilizers in combination with other agrotechnical measures should also be borne in mind: liming of acid soils, use of chemical agents for protecting plants and so forth. However, it would be wrong to apply these average indicators to all regions, without taking into account the structure of the fertilizers, the methods employed for applying them and also the crops, varieties and hybrids for which the mineral fertilizers are applied. Thus, in Tsentral'nyy

Rayon in the RSFSR, 1 quintal of fertilizer (in standard mineral fertilizers), applied in behalf of winter wheat, produces an increase of 1.2 quintals of grain. At the same time, the effectiveness of the same mineral fertilizers applied in behalf of spring wheat is 1.5 times less.

It has also been established that 1 quintal of mineral fertilizer applied in behalf of winter wheat on non-irrigated land in the north Caucasus economic region produces an increase in grain yield of approximately 1 quintal and on irrigated land -- almost two times more. Roughly the same difference is observed in a change in the effectiveness of mineral fertilizers applied in behalf of corn. The effectiveness of the fertilizers should be determined based upon this fact and, when distributing them, a preference should be shown for reclaimed lands.

In addition, it should be borne in mind that varieties and hybrids for agricultural crops of the intensive type have been bred and introduced into production operations during the past few years. The effectiveness of use of mineral fertilizers increases by 20-30 percent following the liming of acid soils. All of these factors must be borne in mind when determining the effectiveness and spreading of mineral fertilizers, with emphasis being placed upon carrying out measures aimed at raising soil fertility and introducing progressive technologies for the cultivation and harvesting of agricultural crops.

Another important measure to be carried out during the Eleventh Five-Year Plan is that of preserving the crops grown. As noted during the November (1978) Plenum of the CPSU Central Committee by L.I. Brezhnev, "the grain, potato, vegetable and fruit losses continue to remain considerable. Such losses cannot be tolerated"*.

Grain losses occur owing to disruptions in the optimum duration periods for grain harvesting operations, imperfections in the harvesting equipment and poor adjusting of this equipment and violations during the loading, unloading, transporting, cleaning, drying and storage of grain. According to the norms, the duration of an optimum grain harvesting period is 7-8 working days. However, it may last for a considerably longer period and a portion of the grain may shatter in the field. The most noticeable grain losses caused by shedding and overripeness commence on the eighth day following the onset of complete ripeness and this determines the optimum grain harvesting periods. A considerable portion of a crop is lost during the harvesting operations owing to imperfections in the harvesting machines and their low quality preparation.

Output losses can be reduced by improving the degree to which the kolkhozes and sovkhozes are supplied with harvesting equipment and equipment used for subsequent processing of the products, by achieving more productive use of the machines and assemblies and also through the introduction of new varieties of agricultural crops that are considered to be more suitable for machine harvesting.

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* L.I. Brezhnev. Speech delivered before the Plenum of the CPSU Central Committee on 27 November 1978. Moscow, Politizdat, 1978, p 11.

The estimates should necessarily call for measures which will ensure a reduction in output losses at all stages -- from harvesting the crop to providing the consumer with the finished product (reduction in crop harvesting periods, post-harvest processing and transporting of the crops, improvements in the technology for procuring feed, creation of a base for the storage and processing of highly perishable vegetables and fruit and so forth).

An expansion of plantings on irrigated and drained lands and also the implementation of soil protective measures are taken into account as factors based upon measures planned for the placing of new lands in operation and for the construction of projects for protecting soils and for carrying out agrotechnical anti-erosion measures. Thus, increases in output are determined in accordance with the norms.

An estimate on the basis of factors, for the purpose of validating the production volumes for crop husbandry output, can be illustrated using grain crops as an example (see Table 4).

It is apparent from the table that an increase in grain production, compared to the base period, will be obtained mainly as a result of having raised the cropping power by 3.6 quintals per hectare.

The following formula is used for estimating the increases in gross yield of grain:

$$Q_{\text{пл}} = Q_{\text{ф}} \sum_{i=1}^{n} f_i (F_{\text{пл}_i} - F_{\text{ф}}),$$

where $Q_{\text{пл}}$ - gross yield of grain for planned period;
$Q_{\text{ф}}$ - gross yield of grain for reporting period;
$F_{\text{пл}}$ - number of measures for planned period;
$F_{\text{ф}}$ - number of measures for reporting period;
f - effectiveness of measure (of factor);
i - individual crop;
n - number of measures.

Of the various measures, mineral fertilizer applications account for the largest proportion of output increases. Such applications ensure an increase in cropping power of 1.8 quintals per hectare and a 42 percent increase in gross yield. Thus the increase in grain production in our example, over an above that planned in the volume estimates, can be achieved mainly by increasing the applications of mineral fertilizers (particularly when the estimates indicate only 5 quintals of mineral fertilizers per hectare of planting).

But the mineral fertilizer applications can be increased only in those instances where the oblast, rayon or farm has additional fertilizer funds

TABLE 4

	1971-1975 annual average, $F_ф$	1965 (conditional estimate), $F_{пл}$	1985 ± compared to 1971-1975, $F_{пл} - F_ф$	Effectiveness of measures per unit of increase in factor, f, in quintals per hectare	Increase in gross yield of grain, thousands of tons $f \cdot (F_{пл} - F_ф)$	Increase in cropping power, in quintals per hectare $\frac{f \cdot (F_{пл} - F_ф)}{1000}$
Area under crops, thousands of hectares	950	1000	50	14.2	71	--
Mineral fertilizer application, thousands of tons of conventional units	350	500	150	12.0	180	1.80
Organic fertilizer application, thousands of tons	4000	5000	1000	0.2	20	0.20
Sowing, thousands of hectares:						
on irrigated lands	100	120	20	10.0	20	0.20
on drained lands	80	100	20	5.0	10	0.10
following clean fallow	150	170	20	5.0	10	0.10
new varieties of grain crops	200	500	300	1.5	45	0.45
on areas where anti-erosion soil cultivation is used	200	400	200	1.2	24	0.24
Reduction in losses owing to use of new harvesting and other machines and reduction in schedules for field work and other measures, thousands of hectares	--	on entire area		0.5	50	0.50
Gross yield of grain, thousands of tons, Q	1350	1780	430	-	430	-
Cropping power of grain, quintals per hectare, 1	14.2	17.8	3.6	-	-	3.6

at its disposal. If such funds are not available, then the possibility should be investigated of increasing grain production by means of other factors considered in the estimates, factors such as expanding the plantings of new varieties and employing progressive technologies, including organizational-economic measures (raising labor productivity, improving material stimuli for workers and so forth) not mentioned in a particular estimate.

A similar computation, with the exception of the particular peculiarities associated with the cultivation of individual crops, is employed for the other crops. For example, in the estimates for raw cotton production the following items should ideally be taken into account: mastering of cotton-alfalfa crop rotation plans, modernization of existing land reclamation systems and improvements in the availability of water for them -- use of engineering and non-engineering rice systems and so forth.

The practice of employing norms in the preparation of five-year and annual plans for the 1976-1980 period has revealed that they have been of assistance in achieving a good balance between the production volumes for agricultural output and the resources allocated in the plans, and also in raising the validity of the planning estimates. At the same time, individual shortcomings in the norms themselves were revealed. For example, disproportions were tolerated in the norm for the duration of the optimum agrotechnical periods for carrying out the principal field work in the cultivation of agricultural crops (approved by the USSR Ministry of Agriculture in 1975). For example, the overall duration of the harvest period in the north Caucasus, taking into account the correspondence of the periods for individual crops and the removal of post-harvest residues from the fields, amounts to 25-28 days according to the norm and on vegetable raising farms -- more than 30 days. At the same time, the duration of autumn plowing, including that in behalf of winter crop sowing, is established as being 12 days, that is, the indicated norm orients the agricultural organs in advance towards raising the requirements for plowing units. These shortcomings must be taken into account when developing new norms for the Eleventh Five-Year Plan.

The modern period of agricultural development is characterized by production intensification and accelerated scientific-technical progress. This implies that the norms employed for planning estimates should be developed based upon the latest scientific achievements and the extensive use of highly productive machines, progressive production technologies and so forth. The norms must guarantee sound growth in agricultural production and in the branch requirements for resour[illegible]

The use of the norm method of planning, combined with estimate validation on the basis of factors, will make it possible to place agricultural planning on a scientific basis and raise its authenticity and effectiveness.

The gosplans of the union republics, the local planning and agricultural organs and the kolkhoz and sovkhoz specialists, in their planning work and in combination with the use of approved norms, must make more extensive use of factor-validated estimates for agricultural production. This will make it possible, in future planning, to realize more complete utilization of the reserves that are available for increasing production output and achieve good balance in the estimates in terms of resources.

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AGRO-ECONOMICS AND ORGANIZATION

REPORT ON UNDERGROUND MEAT 'SYNDICATE'

Minsk SEL'SKOYE KHOZYAYSTVO BELORUSSII in Russian No 1, Jan 80 p 46

[Article by V. M. Mikhaylov: "The Underground Meat 'Syndicate'"]

[Text] For the second day in a row I. I. Saprykin, the director of the Molotkovichi Sovkhoz, has been in a bad mood. Il'ya Ivanovich paced nervously to and fro in his office. He could think of nothing but a conversation that took place several days ago in the oblast trust, Zagotskotootkorm [Trust for the procurement of livestock to be fattened]. The trust administration expressed its dissatisfaction with the managerial activities of the director because the sovkhoz failed to meet the annual goals in meat production.

Someone knocked on the door carefully, and not receiving permission to enter, knocked a second and then a third time. "They don't give me a chance to think things through," thought the director with displeasure. The face of the secretary in the reception room appeared through the door.

"Comrade director, a citizen wants to see you. He calls himself an experienced specialist in the area of meat procurement."

"Tell him to come back on the day I give interviews," I. I. Saprykin cuts her off. Then he caught himself. "I didn't hear what you said, a great worker in the area of procurement? Then send him in without delay."

The discussion of the enterprise's director and the stranger took place behind closed doors. No stenographic record of the meeting was made. Witnesses say that the director soon came into the reception room in a happy and gay mood. Calling the specialists of the enterprise together, he made a little speech. He said that the procurer Vitaliy Aleksandrovich Yakubchik from Luninetskiy Rayon would attempt to make the enterprise a leader in the production of pork and beef. From now on, he said, Yakubchik would procure calves and pigs from the population.

Vitaliy Yakubchik was unique in his energy. The first thing he did was bring cleanliness and order to the livestock procurement base. Every working moment was to be utilized to the fullest. He exposed truants and tipplers and did not tolerate loafers.

In other words, in Pinskiy Rayon V. Yakubchik became known as a serious worker who was deeply concerned about his enterprise. But the Molotkovichi Sovkhoz continued to lag behind in the sales of beef and pork to the state. The most observant workers of the livestock-reception base more and more frequently saw their superior come in with eyes cloudy from overdrinking. If the superior breathed on one of his workers accidentally the worker could almost taste the alcohol. Yakubchik brought cleanliness and order to his section less and less frequently because there wasn't enough time. The time was spent in long conversations with V. Litvinchuk, master refrigeration worker of the Pinskiy Meat Combine. Other workers of this enterprise also came to the livestock-reception base. For example, the bookkeeper of the raw materials division T. Kozel, packers G. Kurilo, A. Sachkovskiy and G. Novak, weighers V. Igolko and Ye. Filippova, and shipping clerk of the autocombine number 2, Z. Nesterovich and others came. It later became clear that they were not there to deal with the problems of deliveries of highly nourished livestock to the meat combine. "During one such visit of guests from the meat combine I became the involuntary observer of the following scene. V. Yakubchik handed T. Kozel, V. Litvinchuk and V. Igolko weighty packets of money and said that this was a fee for the prosperity of their firm," said G. Vasilevich, kolkhoz farmer of the 40 Let Oktyabrya Kolkhoz of Ivanovskiy Rayon during the inquiry.

Signals about the "energetic economic activities" of V. Yakubchik began to be received in rayon party and soviet organs and in the OBKhSS [Department for combatting the embezzlement of socialist property and speculation] of the rayon division of internal affairs. Letters dealing with the same topic were received by the Ministry of the Meat and Dairy Industry of the BSSR. Investigators arrived. They studied the primary documentation on the procurement of livestock in the Molotkovichi Sovkhoz and its sale to the Pinskiy Meat Combine long and scrupulously. When they learned something many of them clutched their heads. The youngest inspector, upon learning of the violations in the activities of the "Yakubchik and K" firm, began to stammer. In almost 4 years the state has suffered a material loss of over 50,000 rubles.

"I wish to express my sincere regret and bring to your attention the fact that I did a great deal to fulfill the plan of the sale of meat by the Molotkovichi Sovkhoz," writes V. Yakubchik in a letter to the senior investigator of especially important affairs of the investigation administration of the BSSR MVD [Ministry of Internal Affairs], I. Kul'chinskiy. "At first we were careful, creating unaccounted for supluses of livestock," adds a colleague in crime, the veterinarian of the same enterprise, I. Savitskiy. "Later we saw that the procurement documents were examined only formally, for appearance's sake, in the bookkeeping department."

At various times 17 materially-responsible individuals of the Molotkovichi Sovkhoz and the Pinskiy Meat Combine were drawn into the criminal group occupied with the embezzlement of state monetary .esources. The "firm" was flourishing. Surplus meat was created by lowering the weight of the carcass. The thermal treatment of meat in freezers and the order of unloading meat were violated. There were months in which Yakubchik kept dozens of heads of cattle and hogs at the sovkhoz base for weeks on end while according to the documents the animals were not recorded in the bookkeeping system. When the members of the "firm" began to fear what they had done, Z. Nesterovich made a home-made still. Nights were spent drinking and eating the stolen smoked products, and toasts were made to the absent-minded directors of the Molotkovichi Sovkhoz and the Pinskiy Meat Combine.

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COMMENTARY ON UNDERGROUND MEAT 'SYNDICATE'

Minsk SEL'SKOYE KHOZYAYSTVO BELORUSSII in Russian No 4, Apr 80 p 46

[Article: "Underground Meat 'Syndicate'"]

[Text] An article entitled "The Underground Meat 'Syndicate'" was published in the first issue of our magazine. It discussed abuses at the Pinsk Milotkovichi Livestock Reception Point. As reported by the director of Belglavskotoprom [Belorussian main administration of the livestock industry], V. F. Chechenets, the information presented in the article was true. The director of the base, V. I. Yakubchik, and veterinarian I. V. Savitskiy were fired from their posts as a result of the gross violation of regulations in the reception of livestock from the population. They have been called to account for their actions and judged by a people's court.

The senior deputy bookkeeper of the Molotkovichi Sovkhoz, L. Ya. Tunik, was fired for shortcomings in the management of primary accounts, for the absence of controls over the work of materially-responsible individuals and for failure to preserve socialist property. All responsible individuals of the livestock-reception base have been deprived of all types of bonuses for one year.

The deputy director for procurement of the Molotkovichi Sovkhoz, N. A. Oshurkevich, and the senior bookkeeper, F. V. Tarelko, were severely reprimanded for attempting to dodge direct job responsibilities and for their lack of controls, as a result of which it became possible to abuse and embezzle socialist property. The latter was fired from his job. In addition, N. A. Oshurkevich was stripped of all types of bonuses completely, and F. V. Tarelko--by 50 percent.

The deputy director of the Brest trust Oblskotoprom [Oblast livestock industry trust], V. T. Cherepen'kin and the senior bookkeeper S. P. Lukashchik were reprimanded for unsatisfactory controls over the work of livestock reception stations of sovkhozes under their jurisdiction. They were deprived of 20 percent of bonuses each.

Belglavskotoprom has elaborated measures to improve the organization of procurement and to protect socialist property in sovkhozes and in livestock-reception bases.

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ANIMAL HUSBANDRY AT SUBSIDIARY ENTERPRISES AROUND ARKHANGEL'SK

Moscow TRUD in Russian 29 Feb 80 p 3

[Article by special TRUD correspondent G. Titov: "Farm in Lumber-Industry Enterprise, Develop Subsidiary Operations"]

> [Text] "By your work you are helping the workers of the Turdeyevskaya Lumber Exchange accomplish their production tasks. Our work isn't easy. And you always take care to insure that we are well fed, especially on the night shift. Your menu is well-planned, your dishes are tasty and the ingredients are fresh. We are grateful to the personnel of dining hall No. 1 for their work.
>
> "On behalf of T. Klopkov's rafting crew."

No, the work of the people involved in our timber extracting operations is no easy task. The concerns of the managerial personnel responsible for thinking of the living conditions of our loggers, rafters and tractor operators are no simple matters either. And among these concerns, although hardly the primary one, is to insure that the people are fed to satisfaction with tasty and appealing dishes. But you don't get these things done in any short order here, for the song "Ekh, dorogi..." has become the hymn of the local drivers. And 30-40 kilometers out of Arkhangel'sk I myself experienced what travelling the local roads, or more accurately the local bad roads, is really like. How do they bring in the provisions they need here? In the interior there are no commercial refrigeration facilities.

There are no refrigeration facilities, that's true. But it is still possible to keep tomorrow's goulash, chops and cutlets alive, so to speak. That possibility entails the development of subsidiary livestock farms. And these--one large one and another smaller one--are precisely what are being created within the Arkhangel'skleaprom All-Union Lumber Industry Association, and at the Turdeyevskaya Lumber Exchange in particular. It's director, V. Minin, declared:

"The subsidiary enterprise is a big help. Whether I want to or not, I devote perhaps half of my time to it, although they don't bother with expressions of gratitude in the dining halls. But, oh boy, what work all this is! We've received some equipment: a DT-75 tractor, a mowing machine and a disc cultivator. Then we had to put a construction crew together. They built a feed-preparation facility. And now we are expanding it. It's warm and dry in the hog house. We will soon be able to "settle" 500 head in it."

They've also had to do some conjuring with their system of payments. It's true that the trade unions have helped out here. They've worked out a system that does a good job taking into consideration the housing and maintenance of the livestock, weight gain and increases in offspring. On the whole, they've now got to think not only of their "commercial" timber, but of their "good" piglets as well.

Keeping those unstressed "o's" like they do along the coast, Minin seconds S. Amosov, deputy general director of Dvinoslesosplav:

"Well, we feed our neighbors from the wood-working combine. We turn out 40 kilomgrams of pork for each worker. Part of this we turn over for semiprepared and convenience foods and for trade; the other part goes to the meat combine in exchange for sausage, pel'meni and beef. We have overfulfilled our plan: we had intended to achieve a 210-quintal weight gain, but we've already reached 225 after only 11 months. And it's true we've had only little feed....

...V. Plokhov, the director of Arkhangel'sklesprom, took what then happened as a personal misfortune. We didn't even have a chance for a chat. We had just opened an album describing the development of the association's subsidiary enterprises when the telephone rang. It was a call from the Levkovskiy lumber enterprise. Local and oblast veterinarians were meeting there: it looked as though the pigs were being struck by an epidemic. As result of the forced slaughtering that followed, the swine herd was sharply reduced.

But in the time it took for me to familiarize myself with the report on the development of the association's subsidiary enterprises, Plokhov had been able to phone around to those with "surplus" piglets, or more accurately, more than called for by their plan. And with every little bit helping, the neighbors have now begun to put together a plan to assist the farm that had suffered this lo s.

I later understood why Vasiliy Savel'yevich felt this incident so keenly. It was simply that Plokhov was always accustomed to having the barns clean and in good order. And their managers attended to their duties in a highly responsible manner. That's why nothing ever goes wrong here.

They tell about this incident. The head of the association was visiting one of the garages under his jurisdiction one day. The confusion and disorder he discovered here were enough to "set him off," as the saying goes, with only half a turn of his crank; but Plokhov tried to restrain himself and suppress his anger. But at just that moment, somebody declared with ill-concealed disgust:

"Just like in the hog house...."

It was then that Plokhov blew his stack:

"In the hog house? Why you just have a look at what kind of order you have in the hog house at the Podyuzhskiy timber enterprise...at the least set up a veterinary dispensary. You and your hog house....What a trash heap here...."

It's no easy matter to set up these operations. Within the association there are 167 timber collection points and 216 settlements located far from any roads--we still need to get through to them. This precisely the reason why Arkhangel'sklesprom is proudly pointing to number 117. This is the number of settlements having livestock farms. They are going to be set up at 30 points as well during the next 2 years.

"But to evaluate these subsidiary enterprises," V. Plokhov told me, "and the benefit derived from them can perhaps best be done by looking at an average enterprise. Take, for example, the Nyandomles association's Zaozernyy timber collecting point. They are allocated a little over 6 tons of meat a year, but their subsidiary enterprise provides more than 14. Plus 500 quintals of milk to boot. The farm has a total of 30 head of cattle and 330 pigs. That's why the directors of our lumbering enterprises are striving, as they say, to their utmost to set up their own subsidiary enterprise.

"Where do we get the money? And Gosbank loans and credits for what? Raising hogs rapidly pays for itself."

Livestock farms are being set up everywhere. The following figures provide convincing evidence of this. Arkhangel'sklesprom put up 26 hog houses and 4 cattle barns during the past year alone. This plus the 4300 places already existing. More than 12,800 piglets were delivered for fattening last year.

Private operations are being developed within the association in addition to those of the lumbering enterprise.

"I'm now fattening three hogs," declared G. Semenyuk, a lumber-exchange crane operator. "They've already gained 65-70 kilograms. I buy the mixed feed at the workers' supply department; some of the small potatoes come from my own garden. Ours isn't a small family with three children. I fatten the young pigs up to 100 kilomgrams; then half the pork goes to the state and we keep the other half. At the same time, we're able to enjoy the fruits of the subsidiary enterprise. My wife can buy semi-prepared convenience foods, while the dining hall is always serving pork dishes."

Where did this crane operator get his young pigs? At his lumber exchange. Arkhangle'sklesprom sold its workers 15,000 young pigs last year and is now striving to create all conditions necessary for the maintenance of privately owned poultry and livestock. And here's the result of its efforts. The private farms of association workers now number more than 5000 head of horned cattle, 7000 pigs and 16,000 sheep and goats.

L. I. Brezhnev declared in his report to the July (1978) plenum of the CPSU Central Committee that subsidiary enterprise farms should play a useful role in improving supply. The ideas that insuring regular supply and that the production in sufficient quantities of a broad assortment of high-quality food products are among the most important tasks were also emphasized at the November (1979) plenum of the CPSU Central Committee. Now, what is Arkhangel'sklesprom's record in its efforts to accomplish these tasks? For feeding the work force its subsidiary enterprises over the past year delivered more than 2400 tons of milk, 1680 tons of meat and 1,100,000 eggs. This plus 140 quintals of early vegetables.

Setting up these subsidiary enterprises has been no easy task. For in addition to all the purely practical problems involved, Vasiliy Savel'yevich has also had to tackle another one of a different kind--he has had to develop a new psychology among lumber-enterprise managers. There was a time when almost all of them looked upon the subsidiary enterprises as a makeweight interfering with efforts to fulfill their timber procurement plans. But now, V. Lykov, A. Sushchenko and V. Toropov, general directors of the Plesetskles, Vel'skles and Konoshales associations, for example, as well as many others, are defending the development of subsidiary enterprises with all means at their disposal. And of course there's one other thing. In addition to all the other benefits in this connection, there has been a substantial reduction in labor turnover.

The subsidiary operation is like another shop in the enterprise; it has its own leaders, its own heroes. But to multiply the number of our outstanding, progressive farms and transform them into a solid foundation of our food production and supply base clearly requires that closer attention be paid to several problems facing the association. To date, for example, many Nyandomles, Onegoles and Bereznikles farms and enterprises have not been provided with sufficient farmland. They are frequently offered land requiring a great deal of effort and expense to improve: stubbing and draining, for example.

And then there's another thing. We can't say bad things about Goskomsel'khoztekhnika; it is indeed providing assistance. But considering the scale to which our subsidiary enterprises have developed, the help it has given so far has not been enough; and you can't get much done by hand in one of these operations. There is a need for transport vehicles, KV-300 boilers, milk lines, trailers.... There is certainly a need for standard plans for small--for 50-100 head--hog houses as well.

And, of course, the association is experiencing a need for more personnel. Maintenance and service personnel, primarily. It might perhaps pay to extend to maintenance and service personnel some of the privileges and benefits granted to "field" workers in lumbering organizations, rewards for length of service or extra vacation time for example.

...It was not yet daylight when the train left Arkhangel'sk. Clad in their winter garb and fading into a single snowy horizon were the houses, the industrial facilities and the wealth of the region--the forest. Leaving the last lights of the city behind I was still thinking of the people who are helping the loggers in their difficult work and whose concern is that their table be bountiful and varied. It ought to be that way everywhere, I thought. And the train gathered speed.

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AGRO-ECONOMICS AND ORGANIZATION

SUBSIDIARY ENTERPRISE AT CHELYABINSK METALLURGICAL PLANT

Moscow PRAVDA in Russian 22 Jan 80 p 2

[Article by G. Yakob, director of the Chelyabinsk Metallurgical Plant's subsidiary agricultural enterprise: "An Agricultural Supply Service for Metallurgists"]

[Text] Ten year ago the Chelyabinsk Metallurgical Plant formed its own subsidiary agricultural enterprise. We were given the use of some land on the outskirts of town, unproductive waste land for the most part where there used to grow only weeds.

The metallurgists put much effort and many resources into the development of their agricultural "shop." They recultivated 1352 hectares of land; built 40,000 square meters of greenhouse space; set up a pig farm to handle 2,000 head; developed an irrigation system; laid out a vegetable-growing area and set up a fermenting and pickling facility.

Their subsidiary enterprise now fully supplies the vegetable requirements of the metallurgists' communal food service, including the plant kindergartens, Pioneer camp and hospital.

Metallurgical plant personnel have an interest in the successful operation of their enterprise and render us a great deal of assistance. These combined efforts produced good results in 1979: grain crops yielded more than 36 quintals, vegetables 250 and potatoes 126 quintals per hectare. The profit-earning capacity of their agricultural operation is growing from year to year.

But we do have our difficulties. A modern agricultural operation requires a good fleet of vehicles and machinery and efficiently operating equipment. But in the eyes of the local Sel'khoztekhnika association we are no more than a "peripheral" organization. Canning and repair facilities are being built only slowly. The problem of providing housing for the animal husbandry people has now become very critical.

But despite all these problems, we still believe that such subsidiary operations are necessary things for large industrial enterprises. They help greatly increase food production and improve supplies for plant dining facilities and production collectives.

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AGRO-ECONOMICS AND ORGANIZATION

INTERVIEW ON SUBSIDIARY ENTERPRISES IN MINISTRY OF RAILWAYS

Moscow GUDOK in Russian 15 Jan 80 p 3

[Interview of V. M. Podyukov by A. Gorokhov: "For Our Common Table, Reserves for Workers' Supply"]

> [Text] Within the Ministry of Railways are more than 50 sovkhozes and subsidiary farms specializing in the production of meat, milk, eggs, potatoes and vegetables. With what results did they close out the past year and what tasks are they now working to accomplish? A. Gorokhov, our special correspondent, asked V. M. Podyukov, head of the agricultural section of the Main Administration of Workers' Supply of the Ministry of Railways, to discuss this.

[Question] Vladimir Maksimovich, what kind of harvest of basic agricultural crops did our agriculturalists bring in this past year?

[Answer] Not a bad one, all our sovkhozes and subsidiary farms taken together. As compared with the previous year, for example, potato and vegetable and melon production from the same crop area was up 5800 tons, that is, by 20 percent. The Krasnoyarsk main line achieved very good results, its average potato yield reaching 186 quintals per hectare, more than 200 on the Uzhurskiy sovkhoz (V. Cherpasov, director). Neither did this farm do badly with its vegetable harvest--391 quintals per hectare--but the Bogotol'skiy sovkhoz (M. Mel'nikova, director) came out ahead all the same with 440 quintals.

We were also pleased with good harvests of the same crops on the Southern Ural, Southeastern, Northern....The farms of the last one I mentioned achieved a potato yield of 149 quintals per hectare and a vegetable yield of 430 quintals per hectare. As many as 185 quintals of potatoes and 667 quintals of cabbage per hectare were harvested on the Osanovo sovkhoz, which supplies Vologda junction ralroad workers. This farm, which has been directed for many years by Fedor Ivanovich Butusov, has been a repeated participant and prizewinner at the VDNKh [Exhibition of Achievements of the National Economy of the USSR].

[Question] What are the total figures on agricultural products our sovkhozes and subsidiary enterprises have delivered to the railroad workers' supply organization over the past year?

[Answer] Preliminary figures (in quintals) indicate the following: milk--151,000; meat--50,000; potatoes, vegetables and melons--270,000 and eggs--10,600,000.

[Question] So we can draw the conclusion that most sovkhozes and subsidiary enterprises fulfilled their established plans for sales of agricultural products to workers' supply, while sovkhozes of lines such as the Krasnoyarsk, Kuybyshev and Yuzhno-Ural'skaya substantially increased their production of meat, milk and eggs as compared with the preceding year. Most of them, but not all of them?

[Answer] There are farms on the Zabaykal'skaya, Privolzhskaya, Oktyabr'skaya and Severnaya lines, unfortunately, whose directors were unable to organize their operations so as to be able under unfavorable weather conditions to hold on to the positions they had achieved.

[Question] How are the sovkhozes doing when it comes to feed and provisions for wintering their livestock?

[Answer] Most of our livestock farms fulfilled, and some overfulfilled, their coarse and succulent fodder-making plans. Surplus coarse fodder was transferred from the Yuzhno-Ural'skaya's Sovkhoz No. 1, for example, to the Fion sovkhoz in the arctic, which is the only supplier of whole milk to rail workers of the Vorkuta branch. The task now consists of insuring that all farms maintain a well-organized system providing proper storage and accounting for each kilogram of fodder and processing procedures enhancing the nutritional value of the feed.

The crop farmers also have enough to worry about to keep them busy: all their equipment has to be in good repair by the coming planting time and they have to prepare their seed, store their fertilizer, keep the snow on the fields....

[Question] More than a year has gone by since the CPSU Central Committee and Council of Ministers adopted their decree on "Subsidiary Agricultural Operations of Enterprises, Organizations and Institutions." Who is now taking the lead in this matter and what does the future hold in this direction?

[Answer] The Gor'kovskaya has demonstrated a valuable initiative in this regard. Utilizing their own resources, branches of the lines here have in an economical manner set up 8 pig raising operations to handle 1300 head; 8 more farms just like them are in the construction stage, while another 6 have been planned for the next 2 years.

Through joint feeding of their young pigs, Gor'kovskaya personnel are producing approximately 1300 quintals of meat from their swine-fattening operation. These figures will double when they put their new pig farms into operation. The Ministry of Railways and the Central Committee of the Railway Transport Workers' Union have expressed their approval of the initiative demonstrated by the directors of the Gor'kovskaya main line and sent out a letter to all line and branch directors and chairmen of line and rayon committees of the Railway Transport Workers' Union requiring them to study the matter of setting up new and expanding existing subsidiary agricultural operations.

[Question] Readers know from our correspondents' reports that things are in pretty good shape in this respect on the Western Kazakhstan, Eastern Siberian, Tselinnaya, Northern, Far Eastern, Southern Ural and Southeastern lines. How about the others?

[Answer] The ministry decided in October to establish the large Mogzonskiy sovkhoz on the Chita branch. This farm will encompass more than 10,000 hectares of land, raise more than 1000 head of horned cattle and each year should provide workers' supply with 5000 quintals of milk, 1500 quintals of meat and 1000 quintals of vegetables.

[Question] So as it turns out, your numbers are increasing, and there are now 40 sovkhozes?

[Answer] Forty-one. A ukase of the Presidium of the Supreme Soviet of the USSR has transferred the Pervomayets sovkhoz in Syrdar'inskaya Oblast to the jurisdiction of the Central Asian line on a regular and continuous basis to supply railway personnel on the Khavast branch, as well as those working under these difficult climatic conditions.

[Question] The traditional question: about difficulties our food supply service is experiencing.

[Answer] The answer is the traditional one as well: a shortage of trucks, wheeled tactors like the Belarus' and the trailers to use with them. Taking no account of newly formed agricultural enterprises, the MPS [Ministry of Railways] Main Material and Equipment Supply Administration is allocating insufficient resources for this equipment.

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TILLING AND CROPPING TECHNOLOGY

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DEVELOPMENT OF BARLEY CROP IN CENTRAL CHERNOZEM ZONE

Krasnodar SEL'SKIYE ZORI in Russian No 1, Jan 80 pp 18-19

[Article by A. Ponomarenko, senior scientific worker of the L'govskaya Test and Breeding Station of Kurskaya Oblast and candidate of agricultural sciences; A. Roskoshanskiy, director of the agrochemical laboratory: "Reserves of the Spring Fields"]

[Text] Barley is a crop that is used widely and for various purposes. Because of its relatively high drought-resistance, stable productivity and early harvesting schedule it plays one of the leading roles in the grain industry of the Central Chernozem. In regular years spring barley occupies 20-30 percent of the sowing area in grain-beet crop rotations, and in cases where winter crops must be resown its proportion in the grain fields grows to 50 percent.

The search for ways to further increase the productivity of barley crops is a large resource for the growth of grain production in the TsChO [Central Chernozem Region]. In the course of 1973-1978 at the L'govskaya Test and Breeding Station we studied the effects of predecessors, fertilizers and a number of other factors on the yield and quality of spring barley. The tests were made in a zone of sufficient but unstable moisture supplies on thick low humus typical chernozem of an average loamy mechanical composition.

The predecessors of barley--sugar beets, spring wheat and corn for silage purposes--were fertilized with manure and mineral fertilizers. For barley fertilizers were applied only in one variant in which their direct effect on productivity was studied. The barley variety used was Nutans-106, the sowing rate--5 million, and the agrotechnology--the usual for the zone.

The largest yield was obtained when sowing barley after silage corn (Table 1). Under conditions of practically identical soil structure, its composition and content of mineral the soil moisture affected the formation of the grain harvest. Whereas during years with sufficient amounts of precipitation (let's say 1973 or 1977) there was no basic difference in productivity, during dry summers the barley harvest after sugar beets were significantly inferior to the variant with spring wheat and more so to that with corn.

Table 1

Effect of Predecessors on Soil Fertility, the Harvest and the Chemical Composition of Barley Grain

Indicators	Soil layers, cm	Predecessors		
		Sugar beets	Spring wheat	Corn for silage
Assimilated moisture,mm				
in sowing	0-150	200	258	257
in harvesting	0-150	133	131	136
Volumetric weight of soil, grams/cm^3	0-30	1.15	1.13	1.14
Soil structure (units from 1 to 10 mm), %	0-30	50	51	52
Content in soil at booting stage,mg/kg:				
of active nitrogen	0-30	38	37	34
of phosphorus	0-30	104	96	109
of potassium	0-30	75	73	77
Organic residue (dry mass), quintals/ha	0-50	15	23	43
Barley yield, quintals/ha		27.6	28.1	31.3
Ratio of straw to grain		1.8	1.9	1.6
Content in grain, %				
of nitrogen		1.61	1.62	1.67
of phosphorus		0.94	0.91	1.00
of potassium		0.79	0.74	0.77

This occurs because sugar beets dehydrate the soil more than spring wheat and corn (for barley sown after beets 57-58 mm less remains). Of course, a role is played by stubble-root residue of predecessor crops, especially corn, which enrich the soil with organic and mineral substances. In our tests, for example, 43 kilograms of nitrogen, 13 of phosphorus and 43 of potassium were supplied with corn residue per hectare annually.

It should be noted, however, that during the booting stage for barley the supplies of nutrients in the soil were practically uniform for all variants. There are two reasons for this. First, the more developed barley plants consumed more nutrients. Second, the organic residue of various crops becomes mineralized in the soil in different ways. Whereas beets decompose by 94 percent in the first year, the figures for wheat and corn are only 57 and 38 percent respectively. Consequently, barley only partially utilizes the products of mineralization of these predecessors, leaving large supplies for crops following in the crop rotation.

Barley reacts well to the application of fertilizer. For example, in the variant in which the predecessor beets received 20 tons of manure and

Table 2

Effect of Undersowing Clover on the Yield and Chemical Composition of Barley

Indicators	Without undersowing	With undersowing
Grain yield, quintals/hectare	28.0	27.7
Content in grain, %		
of nitrogen	1.66	1.80
of phosphorus	1.00	0.97
of potassium	0.83	0.82

mineral fertilizers ($N_{80}P_{75}K_{80}$), the per hectare grain yield increased from 24.1 to 27.6 quintals. When the same dose was applied directly to the spring barley the increase over the non-fertilized control increased to 9.4 quintals. An increase in yield usually is accompanied by an improvement in the chemical composition of grain.

Barley, as an early crop, is used widely in the enterprises of the zone for the undersowing of perennial grasses. According to our data (Table 2), such a consolidation does not have a negative effect of the grair productivity of barley. Moreover, its use as a cover crop increases the nitrogen content in grain somewhat.

In considering these principles, many enterprises in Kurskaya Oblast have significantly increased their sowing of barley on late-fall plowed fields prepared on plantations of silage corn. In years with sufficient moisture this leading grain forage crop is successfully placed after spring wheat and sugar beets with the mandatory application of full mineral fertilizer (60-80 kilograms of each element). The effectiveness of the grain industry has been increased noticeably on this basis.

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PROTECTING CROPS AGAINST WEEDS, PESTS, DISEASES

Minsk SEL'SKAYA GAZETA in Russian 18 May 80 p 2

[Article by V. V'yun, chief of Main Farming Administration of Ministry of Agriculture for the Belorussian SSR and A. Bogdanovskiy, Candidate of Agricultural Sciences and deputy director of Belorussian Scientific Research Institute for the Protection of Plants: "Effective Protection for Crops"]

[Text] The sowing of spring crops in the republic is nearing completion. A priority task of the farmers at the present time consists of organizing timely tending of the crops, creating favorable conditions for the growth and development of cultivated plants and providing reliable protection for them against pests, diseases and weeds.

For the purpose of combating dicotyledonous weeds in winter crop plantings and in addition to harrowing, chemical weed control work should be carried out. Towards this end and when weediness exists in the form of annual dicotyledonous weeds which are susceptible to 2.4-D preparations, use is made of 2.4-D ammonium salt in a dosage of 0.8 kilograms per hectare or 2.4-D butyl ester -- 0.3 kilograms of active agent per hectare. Higher dosages of herbicides (1 kilogram of 2.4-D ammonium salt and 0.4 kilograms of butyl ester) are used when the weediness is caused by such perennial weeds as Canadian thistle, field sow-thistle or cornbind. For combating scentless mayweed and other weeds which are resistant to 2.4-D, use is made of 2M-4KhP (mekoprom) -- 2.5-3.0 kilograms of active agent per hectare.

The meteorological conditions should be taken into account when carrying out chemical weed control work. The toxic effect of 2.4-D preparations on weeds is reduced when the air temperature is lower than 15 degrees. During cool weather it is more effective to employ 2.4-D esters, which penetrate the weeds more rapidly. Under established weather conditions, chemical weed control work using esters should be carried out on winter crops during the tillering phase and when the air temperature is no lower than 10 degrees -- the dosage should be 0.5 kilograms of active agent per hectare. If the temperature is higher than 15-18 degrees, the dosage should be reduced to

0.3-0.4 kilograms. The expenditure of liquid for treating crops by means of aviation -- 50 liters per hectare -- tractor equipment -- 200 liters.

In view of the conditions imposed by this current cold spring period, great importance has been attached to harrowing the spring grain crops. Prior to the seedling stage, this work is carried out crosswise to the rows, when the white threads of the weeds appear and the sprouts of the grain crops are 1.0-1.5 centimeters long, and post-seedling harrowing -- during the phase of 3-4 leaves. Medium harrows are employed on heavy-textured soils and light spiketooth harrows on light-textured loamy and sandy loam soils.

Harrowing carried out prior to and following the appearance of seedlings is an effective means for combating weeds on plantations of corn, potatoes, sugar beets and other row crops.

An effective method for tending spring grain crops is that of post-sowing and even post-seedling packing of the soil, using water-filled rollers, during the phase of 2-3 leaves.

On extremely weedy soils, the harrowing should be accompanied by chemical weed control work for the spring grain crops. This work is carried out commencing with the phase of 2-3 leaves and it continues until the beginning of stem extension. For weed control work in behalf of barley, oats and spring wheat, use is made of the following: 2.4-D ammonium salt in a dosage of 0.6-0.8 kilograms per hectare or a 2.4-D ester -- 0.25-0.3 kilograms, 2M-4Kh -- 0.7-0.8 kilograms of active agent. Higher dosages are required when there is an abundance of perennial dicotyledonous weeds and when spraying the crops during the phase of complete tillering. Following pre-seedling harrowing, chemical weed control work in behalf of barley should be carried out using minimal dosages of 2.4-D herbicides. Prior to the phase of complete tillering, oats should be treated using only 2M-4Kh preparations in a dosage of 0.7-0.8 kilograms per hectare. In view of the fact that the Mami and Nadya intensive type barley varieties are susceptible to 2.4-D preparations, pre-seedling harrowing should be carried out on the areas in which they have been planted, combined with an application of herbicides in minimal dosages: 2.4-D ammonium salt -- 0.6 kilograms and butyl ester -- 0.25 kilograms per hectare.

For combating weeds (common chickweed, hemp nettle, bedstraw, matricary, spurrey, rugged jointweed, violets and others) which are resistant to 2.4-D, use should be made of 2M-4KhP in a dosage of 2 kilograms of active agent per hectare.

In order to destroy hemp nettle in barley, particularly on peat bog soils, the soil must be treated with a mixture of 2.4-D ammonium salt and 2M-4Kh in half dosages.

Grain crops having an undersowing of red clover are weeded using only 2M-4Kh or 2M-4KhM (tropotox), during the period following the appearance in the clover of the first ternate leaf. The 2M-4Kh preparation is used in a dosage of 0.5 and tropotox -- 2 kilograms of active agent per hectare.

When selecting a preparation for use in the chemical weed control of barley having and undersowing of clover, it should be borne in mind that weeds of the mustard family (wild radish, wild cabbage and others) are resistant to tropotox. Thus, on fields where there these types of weeds predominate, use should be made only of 2M-4Kh. At the same time, hemp nettle, creeping thistle and field sowthistle are more susceptible to tropotox. When crops are contaminated by mustard family weeds, hemp nettle or sowthistle, use should ideally be made of these preparations in half dosages.

Under the conditions found in the republic, the principal harm inflicted on grain crops, during the early stage of their development, is caused by the frit-fly, greenbugs, thrips, leafhoppers and other insects. Flies of the spring generation infest the crops mainly during the phase of three leaves. Spring grain crops sustain considerable damage caused by the frit-fly when they are sown late.

This year, with the onset of warm stable weather, favorable conditions will exist for the spring crops to be damaged by the larvae of flies. The most effective method for protecting barley and oats against the frit-fly and weeds is that of employing herbicide-insecticide mixtures. The crops must be treated with herbicides containing the insecticides phozalone -- 1.5-2 kilograms per hectare, metaphos or rogor -- 1 kilogram and during the phase of 2-3 leaves for a strength of 25-30 flies per unit of computation for barley and 30-40 -- for oats.

If 1-2 Siphonaphis pade flies are observed on one stalk, during a 60 percent colonization and during the tillering phase of the plants, chemical treatment must be carried out using one of the following insecticides: metaphos, Malathion or metathion, in a dosage of 0.5 kilograms per hectare. If spring grain crops are treated for weeds during the tillering phase and if there is a threshold strength for the Siphonaphis padi flies, one of the mentioned insecticides, using the same expenditure norm, should be added to the herbicide.

In the case of winter crops, protective measures must be undertaken against grass thrips when there are 10 adult specimens to a stalk at the commencement of stem extension. The greatest number of thrips appear in border strips 50-60 meters wide. Thus it is necessary to employ only border treatments of crops and particularly seed-breeding plots. Of the insecticides, the following can be used: phozalone, phosphamide or metaphos in a dosage of 1 kilogram per hectare.

If at the commencement of leaf extension in the grain crops there are more than 60 caterpillar-like larvae of the leaf sawfly per square meter, the crops should be treated with one of the following preparations: phozalone, metaphos or phosphamide -- 0.6-0.8 kilograms per hectare. The expenditure of the working solution -- 200 liters per hectare.

In flax plantings, the flax fleabeetle constitutes the greatest danger during the seedling period. In addition to damaging the young plant seedlings, this pest also is a carrier of pathogenic agents. In particular, severe damage is inflicted upon late sowings. Insecticides are used to combat the fleabeetle at the commencement of the flax seedling period, with the method of border (up to 55 meters wide) treatments being employed. If during warm dry weather the number of pests exceeds 30 specimens per square meter and during damp weather -- more than 60, then extensive treatment work must be carried out. This requires the use of 20 percent metaphos in a dosage of 0.8 kilograms or chlorophos -- 1.5 kilograms per hectare.

The best periods for carrying out chemical weed control work on flax -- during the "Christmas tree" phase, at which time the plants have a height of 5-8 centimeters. For combating the weeds, use is made of a 2M-4Kh herbicide (dicotex, methoxon) in a dosage of 0.7-1 kilograms per hectare. The treatment is carried out using only a boom apparatus, with the working liquid being expended at the rate of 250-300 liters per hectare. The use of blower sprayers is categorically forbidden. The effectiveness of chemical weed control work carried out on flax increases when 2M-4Kh is used jointly with boron or urea: boric acid at the rate of 0.8 kilograms per hectare or technical urea at the rate of 5-10 kilograms per hectare are added to the herbicide solution.

The "pasmo" disease has appeared on a number of farms in Vitebskaya and Mogilevskaya oblasts, specifically on flax plantings. For combating this disease simultaneously with weeds, a high degree of effectiveness is being achieved from adding the fungacide fundazole, in a dosage of 1 kilogram per hectare, to the 2M-4Kh herbicide solution.

In addition to lowering yields, weeds found in beet plantings also serve as a constant source for contamination by diseases and pests. The agrotechnical method of pre-seedling and post-seedling harrowing of beets, when carried out twice, lowers the weediness by 60-70 percent, reduces the amount of damage caused to the plants by root rot and it also inhibits the development of rots during the growing season.

Herbicides are required for more complete weed destruction. For combating weeds on fields where pre-seedling herbicides were not applied, betanal should be applied to the growing beet plants in a dosage of 6 liters per hectare. The best period for applying it is when the beets have 1-2 pair of true leaves. It can even be used during the phase of 3-4 leaves. If there is a high degree of weediness in polyspermous beet plantings, it is best to commence spraying with betanal at the end of the wishbone phase and the first pair of true leaves. This period coincides with the appearance on the beet plants of such widespread pests as opaque carrion beetles and flea beetles. In order to achieve a more rational execution of protective measures, it is best in these instances to add an insecticide to the herbicide solution for the purpose of simultaneously combating the pests. Fine results are

are obtained from treating the plantings with insecticides when there are two opaque carrion beetles per square meter and in the case of flea beetles -- more than eight. It is recommended that the following insecticides be used in combination with betanal: metaphos -- 2 kilograms per hectare, rogor -- 1 kilogram, metathion -- 1 kilogram, polychlorpinen -- 2.5 kilograms, phozalone -- 2.5 kilograms, chlorophos -- 1.5 kilograms.

In the absence of betanal or when pre-seedling herbicides are used, the destruction of these pests is carried out separately using the abovementioned insecticides in the same dosages.

Crops are treated against the spinach leaf-miner during the phase of 3-4 leaves. The carrying out of protective measures is justified if during this period the pest has laid an average of more than 20 eggs on one plant. For combating the larvae of the spinach leaf-miner of the 1st and 2d age groups, effective results have been obtained from spraying metaphos -- 1.2 kilograms, rogor -- 0.9 kilograms, chlorophos -- 1.5 kilograms, anthio -- 1.5 kilograms per hectare and others.

For destroying the beet root aphid when there are more than 20 specimens per plant (end of May -- first half of June), effective results have been obtained from spraying the same insecticides and in the same dosages as recommended for combating the spinach leaf miner.

Buckwheat plantings must be maintained in a clean state. In the interest of reducing weediness, the buckwheat fields, 3-4 days prior to the appearance of the seedlings, must be harrowed at an angle to the path of the sowing machines and the plantings treated with a 2.4-D ammonium salt solution at the rate of 1.2 kilograms of active agent per hectare, with an expenditure of 200 liters of water.

The effectiveness of all of the preparations is dependent upon uniform distribution of the working solution throughout the areas involved. Thus boom equipment should be mainly used.

Timely tending of the crops and their protection against pests, diseases and weeds provide the basis for stable yields for all agricultural crops.

It is the responsibility of the agronomic service to carry out all protective measures in a high quality manner and during the best periods.

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TILLING AND CROPPING TECHNOLOGY

PEST CONTROL MEASURES FOR GRAIN FIELDS REVIEWED

Moscow SEL'SKAYA ZHIZN' in Russian 20 May 80 p 2

[Article by Yu. Faleyev, VASKhNIL Academician; K. Novozhilov, Corresponding Member of VASKhNIL and I. Polyakov, professor: "For Protecting Fields Against Pests"]

[Text] The protection of plants against pests and diseases has become an important component in the campaign to obtain good harvests. In order to ensure a high level of effectiveness for such campaigns today, use must be made of an intelligent combination of agrotechnical, chemical and biological measures. This requires knowledge of the harmful objects, the times when damage may be inflicted on the plantings of a particular crop and the methods to be employed for reducing such damage or eliminating it entirely.

This year, for example, the greatest harm to winter grain crops in the European part of the USSR and in the Trans-Caucasus is being caused by mouse-like rodents, grain ground beetles, leaf beetles, pentatomids, grain sawflies, grass flies and aphids. The greatest propagation of the mouse-like rodents in the Trans-Caucasus region is expected to take place during the spring and in the north Caucasus and southern Ukraine -- in the autumn. Thus the plantings of perennial grasses and winter wheat should be inspected as quickly as possible at the present time. In those areas where there are more than ten live colonies of mouse-like rodents per hectare, bait containing zinc phosphate or glyco-fluoride should be laid out. In the event of large colonies, use can be made of bacteriodenicide.

The ground beetles, or more precisely their larvae, inflict the greatest amount of damage during the autumn months. Thus the appearance of windfall drops on the fields should at no time be tolerated during the summer on those fields where winter wheat is to be sown. If the summer turns out to be a damp one and if prior to sowing at least two larvae are detected for every 10 square meters of field, then five-percent granulated bazudin (5 kilograms per hectare) or five-percent granulated volaton (50 kilograms) will be applied to the soil simultaneously with the seed.

The harm caused by the leaf beetle increased somewhat during 1979 in the north Caucasus, Altayskiy Kray, Mari ASSR, the Ukraine and in Moldavia. It is expected that the damage caused by this pest will increase in these regions and also in Vladimirskaya, Ivanovskaya, Moscow, Ul'yanovskaya and Volgogradskaya oblasts and in the Bashkir ASSR. In addition to the leaf beetle, damage may at the same time be inflicted upon these same fields by greenbugs. They may also infest plantings in Belorussia and in the Baltic republics. In the north Caucasus and Volga regions, pentatomids appeared in the crops simultaneous with the leaf beetles and aphids. By way of combating this group of pests, protective treatments are usually carried out on a complex basis during the heading period for the wheat. They are even beneficial when there is a low level of colonization of plantings by these pests, since the overall effect always turns out to be rather high. The plantings are sprayed using chlorophos or metaphos (1-1.5 kilograms) or metathion (0.8-1 kilogram per hectare). If during this period the plantings are colonized only by leaf beetles, then the treatments are carried out provided there are more than 50-60 larvae per square meter. In the case of shield bugs, the control norm is more than 2-4 larvae per square meter. A campaign should be mounted against aphids only when the plantings were colonized early (at the commencement of heading) and provided there are no entomophages present, particularly ladybugs.

The number of grass flies last year was not very great. However, during the autumn of last year, conditions developed in a number of regions which were favorable for their propagation and, as a result, the sowing of the winter crops was carried out earlier than usual. Thus individual centers of damage by the Hessian fly developed in the north Caucasus and in the Bashkir ASSR -- by the frit-fly. True, it is not expected that these pests will cause a great amount of damage to the winter wheat plantings. However, the grass flies and also Phyllotreta vittula may prove to be very harmful in almost all areas to spring wheat, oats and barley. A need exists for monitoring their colonization of plantings, especially plantings which are located in the vicinity of perennial cereal grass plantings. In those instances where an intensive flight of flies and a colonization by garden fleas coincide with the appearance of seedlings, the plantings should be treated with chlorophos, metaphos or Malathion insecticide (1.5 kilograms per hectare). In order to prevent the mass infestation of winter crop plantings by grass flies during the autumn, every attempt must be made to prevent windfall drops since it is here that the pests tend to accumulate.

Although the propagation and development of the grain sawflies were hindered by the weather conditions experienced during 1979, nevertheless they pose a threat to plantings in the north Caucasus, the southern Ukraine, Moldavia, the Volga region, the Chuvash ASSR and also in the central-chernozem zone. In the campaign being waged against them, more extensive use should be made of resistant varieties. Every attempt should be made to prevent weeds from blossoming among the crops during the heading period for the grains. The greatest amount of infestation by sawflies occurs in secondary sowings of grains following grain predecessor crops. Those tracts on which the plantings of the previous crop sustained more than 15 percent damaged stalks should be "protected" during the spring by spring rape, the width of which is equivalent to one pass by a sowing machine. During the blossoming period for rape, which coincides with the mass flight of the sawflies, it should be treated with chlorophos or metaphos (1 kilogram).

The plantings should be inspected thoroughly prior to the ripening of the grain. Those fields on which more than 15 percent of the stalks are infested by larvae are best harvested using the two-stage method. This reduces grain losses by 1.5-2 quintals per hectare, since the damaged stalks do not thereafter break off.

The grain moth is inflicting greater damage on spring wheat in the Bashkir ASSR, in Orenburgskaya, Chelyabinskaya, Kustanayskaya, Turgayskaya, Kokchetavskaya and Tselinogradskaya oblasts and in Altayskiy Kray, where conditions favorable to the mass propagation of this pest have developed. In order to reduce crop losses, the harvest must be brought in as rapidly as possible. In those plantings where, during the grain swelling period, more than 15-20 caterpillars are noted per 100 spikes, treatment work will be carried out using metaphos or metathion (1.5 kilograms per hectare).

Susliks pose a threat in Saratovskaya, Volgogradskaya, Ural'skaya, Aktyubinskaya and Orenburgskaya oblasts and in Altayskiy and Krasnoyarskiy krays. In the spring, on grazing land which adjoins plantings and where more than 20 burrows were observved per hectare, grain bait that has been poisoned with zinc phosphide or Glyco-fluoride is laid out and use is made of traps and other means for destroying these rodents. The development of locusts must be monitored very thoroughly, especially in the Volga region, Kazakhstan, Central Asia and in western and eastern Siberia. In addition, timely measures must be undertaken aimed at destroying those centers where there are high numbers of this pest.

Although grain crop diseases such as blight, powdery mildew and root rot were noted in almost all areas during 1979, they did not cause a great amount of damage owing to the cold weather experienced in the early spring and in June and to the droughts which occurred during the first half of the summer. These diseases are expected to pose a greater threat this year. In addition, the spread of various types of smut is intensifying. In any case, good chemical disinfection of the seed and thorough tending of the plantings serve to guarantee a high level of crop protection. Moreover, they make it possible, in combination with other measures, to obtain a full-value harvest of grain.

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TILLING AND CROPPING TECHNOLOGY

ADVICE ON TOP DRESSINGS FOR WINTER CROPS

Minsk SEL'SKAYA GAZETA in Russian 22 May 80 p 2

[Article by L. Detkovskaya, head of a laboratory at the Belorussian Scientific Research Institute of Soil Science and Agricultural Chemistry and P. Dobriyan, chief agronomist for the Main Farming Administration of the Ministry of Agriculture for the Belorussian SSR: "Repeated Top Dressing for the Winter Crops"]

[Text] Under the conditions imposed by this year's delayed and cold spring period, an application of 60 kilograms of nitrogen fertilizer per hectare, as the initial top dressing for the winter crops, will not ensure normal growth and development for the plants or, in the final analysis, a high yield. At the present time, the wheat and rye plants on many fields throughout the republic are lagging behind in their development, since the mineralization of the organic substance in the soil is taking place slowly and the amount of readily assimilable forms of nitrogen being accumulated in the root layer of soil is insufficient. In particular, this is occurring in soils of a light mechanical texture.

The nitrogen deficiency which has developed in the soil must be made up by applying repeated top dressings to the winter grain crop plantings. This work is carried out while the plants are passing through the stem extension-heading phase. According to field experiments conducted at Belorussian scientific research institutes, a second top dressing of 30 kilograms of active agent per hectare, applied against the background of the initial top dressing (60 kilograms per hectare), produced an increase in yield of 0.5-4 quintals per hectare on soils of average fertility, depending upon the weather conditions. As a result of repeated top dressings, the protein and crude gluten content in the grain increased and improvements took place in the quality of the flour.

This year, based upon unfavorable weather conditions, an increase of less than 4 quintals of winter crop grain per hectare is expected from a repeated top dressing. When combined with treating the plantings with retardants -- up to 7 quintals and lodging of the plantings is avoided.

A repeated top dressing for winter crops must first of all be carried out on sandy and sandy loam soils, where the nitrogen nutritional regime for the plants is considerably worse than that on soils of a coherent mechanical composition. Such work should be carried out on winter crop plantings which were sown following grain predecessor crops and also treated with retardants. Moreover, the first dosage of applied nitrogen, the predecessor crops and the fertility level of the soils must all be taken into account.

On large tracts, a top dressing of nitrogen fertilizers to winter crops must be carried out with the aid of aviation and on other tracts -- using ground equipment and in keeping with the status of the plant stands. The dosage -- 30-40 kilograms per hectare.

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BRIEFS

UKRAINIAN CORN CROP NOTES--In 1979 5,000 hectares in Bolgradskiy Rayon were given over to experiments with agrotechnical innovations in raising corn. This year the new, industrial technology is being introduced on 60,000 hectares and the improved technology on 42,000 hectares throughout Odesskaya Oblast. In the 1979 Bolgradskiy Rayon experiments the time required per quintal of corn dropped from 1.71 to .46 man hours vis a vis the old technology and the prime cost dropped by 93 kopecks. [Editorial Report] [Kiev SIL'S'KI VISTI in Ukrainian 24 May 80 p 2] Corn for grain has been planted on 60,000 hectares, of which 26,000 hectares are irrigated, almost twice as much as last year. The new industrial technology is being employed on 10,000 hectares and the improved technology on 8,000 hectares. The goal is to gather 260,000 tons corn for grain. [Editorial Report] [Kiev SIL'S'KI VISTI in Ukrainian 6 Jun 80 p 1]

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